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II. PUBLISHED MONTHLY. No. 12.

THE JOURNAL

OF THE

DEPARTMENT OF AGRICULTURE

OF

SOUTH AUSTRALIA.

Registered at the General Post Office, Adelaide, for transmission by post as a newspaper.

ISSUED UNDER THE AUTHORITY OF THE HON. MINISTER OF AGRICULTURE.

JULY, 1909.

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Markets, Bureau Reports, Rainfall, etc., etc.

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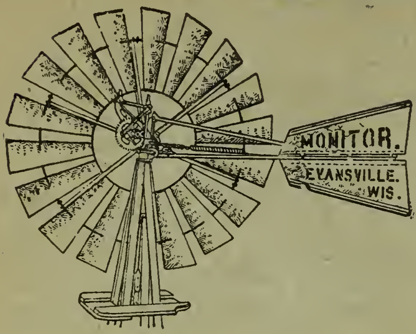

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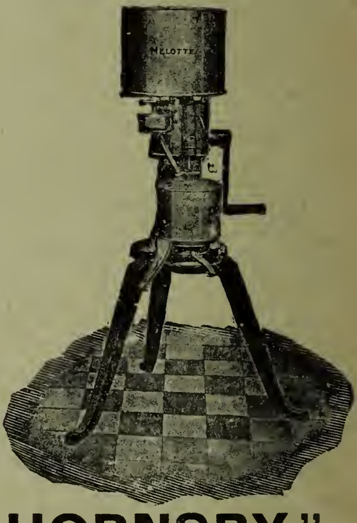

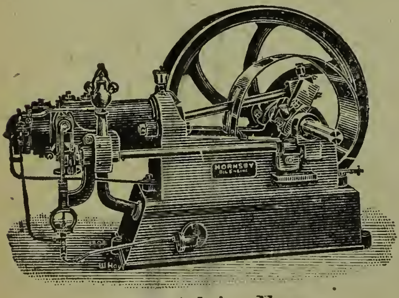

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THE JOURNAL

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Department of Agriculture

OF SOUTH AUSTRALIA.

No. 12. JULY, 1909. Vol. XII.

Published Monthly by the Department of Agriculture.

All communications to be addressed:
"The Editor, Journal of Agriculture, North Terrace, Adelaide."

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E. H. COOMBE,
Minister of Agriculture.

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POINTS FOR PRODUCERS.

Imports and Exports of Fruit and Plants..

During the month of May the Inspectors under the Vine, Fruit, and Vegetable Protection Act of 1885, admitted at Adelaide 10,885bush. of fresh fruit, 72,512 bags of potatoes, 685 bags of onions, and 105 packages of plants from Inter-State sources. At the same time, 406bush. of fruit were destroyed, principally over-ripe bananas. The exports to Inter-State markets consisted of 7,162bush. of fresh fruits, 96 packages of plants, and 2,735 packages of vegetables. Under the Commerce Act, 619bush. of fresh fruits, 108 packages of preserved fruit, 3,902 packages of dried fruit, and 113 packages of honey were exported. These were consigned as follows :—For London, 3,872 packages dried fruit and 113 packages honey ; for New Zealand, 509bush. grapes, 56 packages preserved fruit, 30 packages dried fruit, 50bush. citrus fruits, and two packages of plants ; for India and East, 60bush. apples, and 52bush. of preserved fruit. During the month of June the Inspectors under the Vine, Fruit, and Vegetable Protection Act of 1885, admitted at Adelaide 11,664bush. of fresh fruits, 9,829 bags of potatoes, and 88 packages of plants from Inter-State sources. At the same time, 232bush. of fruit were destroyed, being chiefly over-ripe bananas. The exports to Inter-State markets consisted of 7,416bush. of fresh fruits, 317 packages of plants, and 2,740 packages of vegetables. Under the Commerce Act, 502bush. of fresh fruit, 65 packages of preserved fruit, and 3,430 packages of dried fruit were exported. These were consigned as follows :—For London, 3,430 packages dried fruit ; for New Zealand, 225bush. oranges, 227bush. lemons, 15 packages preserved fruit, and one package plants ; for India and East, 50bush. preserved fruit.

Crops and Stock in Great Britain.

The 1908 returns of areas under crop in Great Britain are of interest as illustrating the magnitude of the agricultural interests of the country. The area under wheat is given as 1,626,733 acres, with an average yield of 32·29bush. ; barley, 1,667,437 acres, yield 32·82bush. ; oats, 3,108,918 acres, yield 39·77bush. We have here a total of 6,403,088 acres devoted to these three cereals. Compare these figures with those of Australasia, viz., wheat, 5,383,911 acres ; barley, 131,099 acres ; oats, 642,814 acres ; total, 6,157,824 acres. It will be seen that the total for the whole of the Commonwealth is a quarter of a million acres short of the total for Great Britain. In root crops turnips and Swedes take the lead with a yield of 15·33 tons per acre off 1,550,897 acres; potatoes come next with 6·97 tons per acre off 562,105 acres, and mangolds 21·03 tons average on 427,772 acres. Beans are also a large crop, nearly 300,000 acres being under cultivation. There are 163,739 acres sown to peas. The area under permanent grass is given at nearly 17,500,000 acres, of which 5,000,000 are mown, while the total of grass and clover cut for hay exceeds 7,000,000 acres. In orchards there are 250,297 acres, and in small fruits 84,880 acres. In stock the records show horses 1,545,671, cattle 6,905,134, sheep 27,119,730, pigs 2,823,482. Australasian figures for comparison are horses 1,871,714, cattle 10,180,214, sheep 87,650,263, pigs 754,101.

Varieties of Potatoes.

At the Ontario Agricultural Experiment Station experiments have been carried out for a number of years with a large variety of potatoes. Out of 124 varieties tried in 1907–8 not one of the first 30 are really known in South Australia. The best return was obtained from Pinnacle Beauty, with 11 tons 8cwts. 72lbs. per acre. King Edward gave 10 tons 14cwts. 74lbs., while the third on the list, Sutton's Prolific, yielded only 7 tons 18cwts. The leading varieties in tests extending over five years are Rural Blush—late variety, pink and reddish color, of good quality, yield, 8 tons 14 cwts.; Carmen No. 1—medium late, white color, good quality, yield 8 tons 6½cwts.; Dooley—medium, white color, good quality, yield 8 tons 3cwts.; Drier's Standard—late, white color, good quality, yield 8 tons; Canadian Beauty—medium, pink and white color, good quality, yield 7 tons 18cwts.

"Green Bug" of Wheat.

In reviews of the prospects of the American wheat crop one often sees references to the fact that, owing to the presence of "green bug" in the crops, the "markets are firming," or "the percentage average has been reduced." This "green bug" is one of the plant aphis very similar in appearance to the ordinary green aphis of the garden. There are several species of wheat aphis, but this "green bug"—the Americans are very partial to the word bug as descriptive of small insects—is the most destructive of them, and when it attacks the wheat before the ears are fairly well advanced it does great damage. The insect is of widespread distribution and appears to be of European origin, being destructive to all classes of cereals. As far as known, it was first noticed in the United States in 1882, and is now found in injurious numbers in many parts, and especially in the southern States, where the mild winters and relatively cool summers appear favorable to its reproduction. It is said that the losses in Oklahoma State in 1907 due to "green bug" exceeded £2,000,000. Fortunately, this aphis is very subject to attack by parasitic insects.

Horse Killed by a Piece of Stick.

Mr. R. S. de Villiers, of La Bonne Esperance, Porterville Road, gives the details of the death of a horse, which are of peculiar interest. It appears that the horse dropped dead under its rider one Sunday afternoon recently. The animal was ridden out to a neighboring farm at 5 o'clock in the afternoon, and nothing wrong was noticed. The return journey was made, and about 9·30, when about a thousand yards from home, the horse swayed and fell dead. The next day a *post mortem* was held, and a piece of stick, several inches long and about a third of an inch in diameter, was found piercing the heart. The horse, it is stated, must have swallowed the stick, because there were no signs to be found of it having been forced through the skin. Cases of a similar nature have been previously mentioned in these pages, but the cause of death has usually been found to be a piece of sharp-pointed wire generally traceable to the baling wire of forage.—*Agricultural Journal of the Cape of Good Hope.*

Prevention of Foliage Injury in Spraying.

For a number of years it has been a problem with pathologists to find some successful way of treating the peach with fungicides in order not to injure the foliage. Some of the standard fungicides often cause complete defoliation. For this reason it has been found difficult to control a number of serious diseases affecting the peach by any of the ordinary treatments. This year it was discovered that a sulphur wash made by combining lime and sulphur, with no other heat than that produced by the slacking of the lime, gave a preparation which was not injurious to peach foliage, and which prevented the scab, and reduced peach-rot to 10 per cent. on the sprayed trees, whereas unsprayed trees had 75 per cent. of the disease. This fungicide, further, completely prevented leaf spot fungi and produced no injury whatever, either to foliage or fruit. While this preparation has been previously used in winter, when the trees were dormant, this is the first time it has been tried on trees in active growth, with the success as indicated.—*Year Book of the U.S. Dept. of Agriculture.*

ENQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence for this department should be addressed to "The Editor, *The Journal of Agriculture*. Adelaide."

Shoeing Horses.

"L.," Narridy, asks how far a nail should be driven up in a horse's hoof, and should it be driven up the same distance for a horse that is shod every three or four weeks as for one that is shod every three or four months.

Veterinary Surgeon Desmond replies :—"The nails to retain the shoe should not exceed five, and they should be driven high enough to keep the shoe on the hoof four weeks. Attempting to keep shoes on a horse for three or four months has crippled many horses."

Analyses of Manures.

"W. B.," Goode, asks :—"(1) How are farmers to find the analyses of manures without consulting an analyst; (2) what is the simplest method of finding out the most suitable manure for our soils; (3) how are farmers to know when manure has been tested by the Inspector of Fertilisers, and are all manures tested ?"

The Inspector of Fertilisers replies :—"(1 and 3) If the farmer requires his individual lot of manure analysed he must, of course, send a sample to an analyst. Speaking generally, however, if he consults the analyses published in the *Journal* he will see what samples drawn at different times by the Inspector contain, and can easily satisfy himself as to the quality of the manure purchased. The Inspector visits all works several times during the shipping season, and draws samples from bags that are being sent away. Under these conditions, while there might be some slight variations in the percentages, the published analyses show that the manures are kept up to the mark. As far as possible all brands are tested, but if any brand not shown in the published list is bought or offered for sale particulars concerning same will be furnished on application. (2) The only satisfactory way to find out which manure suits the soil best is to take the results of work under similar conditions as a guide, and then experiment with different manures. Where this is done it is essential that each plot should be sown with the same variety of wheat, and under similar conditions, care being taken to reap and weigh the results separately."

Renovating a Neglected Orchard.

"Booyoolie" asks how to manure an old garden that has been neglected, and, in consequence, the fruit trees and vines are lacking in vigor. What manure should be used, what quantity, and how should it be applied?"

The Inspector of Fertilisers advises a good dressing of stable manure, applied early and ploughed in. Do not be afraid to plough deeply. Thin out any dead wood and surplus shoots, to cause a vigorous growth. If the trees are mossy or affected by lichen, give a spraying with strong Bordeaux mixture. Keep the land well worked through the summer. Excessive cutting back should be avoided, except where necessary.

Tetanus in Lambs.

"M. M. C.," Redhill, writes:—"Some 12 months ago I wrote you in reference to death of lambs just after tailing, being under the impression that death was due to bloodpoisoning or to the effect of frost. This season lambs only a month old are affected in the same way, and indications point to poisoning. Their feet are stuck straight out and the bodies are quite stiff; though conscious of your approach they are quite unable to move. The lambs may live for several days after first symptom of attack, but they invariably succumb."

Veterinary Surgeon Desmond replies:—"From the symptoms described I have no doubt that tetanus (lockjaw) is the cause of death. Animals become affected by the germs of tetanus either through the agency of wounds or by taking germs into the system with the food. So far no form of treatment of affected animals has proved satisfactory. I would suggest that, where possible, the pasture on which the animals have been grazing should be burnt every year in order to kill the disease germs."

Soapwort.

"A.B.," Strathalbyn.—"The weed you send is one which has been troublesome in wheat crops in the northern agricultural areas for many years past, but has not attracted so much attention in the South. It is *Saponaria Vaccaria*, or soapwort, and is a native of Southern Europe. In the northern areas it is called 'Nancy.' It is a handsome, erect plant, and is essentially a weed of cultivation, sometimes standing nearly as high as the wheat."

If a light dressing of stable manure can be ploughed in, apply about 3lbs. per tree of mineral super. as well. Keep the soil loose to depth of about 3in. throughout the summer."

Killing Soursops (*Oxalis cernua*).

"W. W.," Balaklava, asks:—"Can you tell me through the *Journal* how to destroy a patch of soursops in one of my paddocks? The patch is about half a chain square."

Mr. W. L. Summers replies:—"I have been experimenting with solutions of arsenic on soursops with very satisfactory results. Boil 1lb. white arsenic and 2lbs. washing soda for about 30min. in 2galls. of water. For use dilute this to make 25galls. Roll or mow the weed and apply the solution with a watering can. In a few days the plants will be destroyed. Keep the stock off the patch until several good rains have been experienced. It may be necessary to repeat the treatment before the end of the winter. As the arsenic is very poisonous care must be taken that children and stock cannot get access to the vessels containing it. The water-can used for sprinkling should be thoroughly rinsed immediately, and the tin in which the liquid is boiled should not be used for any other purpose. A solution of sulphate of iron at the rate of 1lb. to 2galls. of water applied in the same way will probably be effective, and though much more costly, is safer than arsenic."

Value of Wood Ashes.

"G. F. N.," Port MacDonnell, asks:—"What are the fertilising ingredients in wood ashes, and is it necessary to grind up or reburn the charcoal left after burning?"

Mr. Summers replies:—"The chief ingredients of value in wood are potash, phosphoric acid, and lime. The potash in South Australian wood ashes will vary from 1·25 per cent. to 5·25 per cent.; phosphoric acid from 0·41 per cent. to 3·20 per cent.; lime 8·54 per cent. to 45 per cent., according to the variety of tree and the age of the wood. With such a low fertilising value in the ashes it would not pay to reburn the small partially burnt pieces of wood.

Horses eating Pickled Wheat.

"R. C.," Port Broughton, asked whether any harm would result if horses were given very small quantities of crushed wheat which had been pickled with bluestone.

Answer.—This would naturally depend upon how much bluestone was used and what is meant by a small quantity. A very small dose of bluestone would be injurious, as it is poisonous, and it would be bad policy indeed to allow the horses to eat even a very small quantity of pickled seed.

STRAWBERRY CULTURE.

The Horticultural Instructor (Mr. Geo. Quinn) replies as follows to a question from " D. K.," Giles's Corner :—" Strawberries like a fairly good rich loam, overlying a retentive clay which is not sufficiently close to create a stagnated condition. In making up the soil for your barrel, I would suggest you place a perforated pipe down the middle, and put in about 6in. of broken stone in the bottom, and pack 2in. or 3in. of river gravel around the pipe all the way up to within, say, 9in. of the surface. The remainder of the soil in which the plants will be set may be made up of equal parts of friable clay, sand, some garden loam, and well rotted farmyard manure. Mix these well together before placing them in the barrel. You could then place your plants in top of the barrel, as well as through the holes bored around the sides. In respect to the position for sun and shade, I may say that, in a warm locality such as yours, a position where the plants would be shaded from the sun about midday until 4 o'clock in the summer time should be the most suitable."

The Horticultural Instructor replies as follows to questions from "J.G.H.R.," Gawler :—" For thinning out strawberry beds the best method found locally is to take up the young runners and leave the two-year old plants untouched, sprinkling a little superphosphate around them (not over them), and chop it in with a fork, or fork hoe, taking care not to damage the roots, which, close to the plant, are near the surface of the ground. Strawberry plantations usually last from three to five years, but in such cases the runners are severed from the parent plants in late summer. The two-year old plants should yield you the best fruit this season, and the stronger individuals amongst the runners, if taken up promptly and planted in good soil, will also yield a moderate quantity of fruit. It will not hurt them to take up runners which are blooming, to send to members of your family, providing the roots are well protected and they are not kept out of the ground long. The best plan is to allow a certain amount of clay to cling around the roots, and not to tie them up in very close bundles, as they ferment very rapidly and decay. As before pointed out, it would certainly operate against their fruiting powers if the two-year old plants are taken up again and replanted. Of course, a few can be lifted carefully without breaking the roots and removed, if necessary, to an adjoining bed."

WHITE ANTS.

The Horticultural Instructor replies to " T. L. T.," Bordertown, as follows : —" In respect to the best method of killing white ants about fruit trees, I am somewhat at a loss to understand whether the termites are actually attacking the trees, or only operating in their immediate locality. As you are aware, these pests live by devouring woody substances, and if they happen to be simply present in the soil it would seem to me that there are broken pieces of roots or limbs buried in the ground. In this case the remedy is to remove all such as far as possible, and to stir the ground deeply and frequently, so as to disturb the insects as much as possible; as they have a dislike to being constantly hustled out of their feeding-ground. If they are in the trees, there is, to my knowledge, no remedy excepting to remove them by cutting out the decayed portions and then painting the exposed and dead faces of the wood with either coal tar or some solution of poison, such as arsenic dissolved by boiling in washing soda at the rate of ½oz. of arsenic to 2ozs. of washing soda in ½gall. of water."

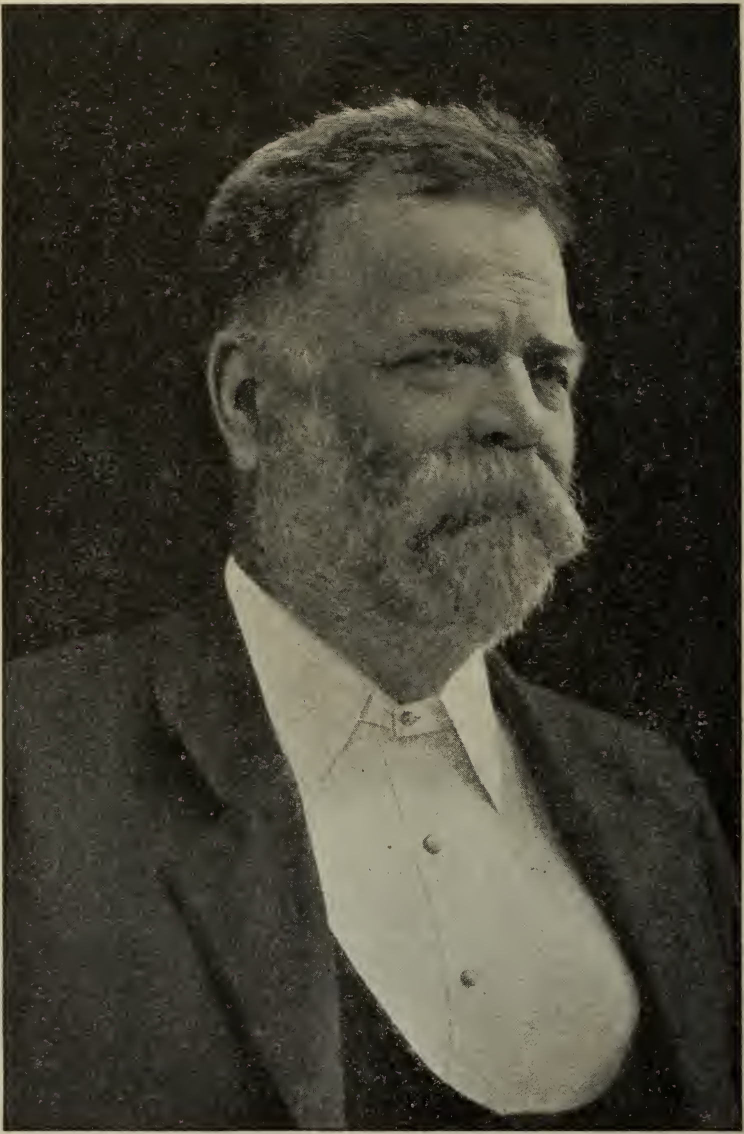
Unfruitful Cherry Trees.

Mr. Quinn answers another question from "T. L. T.," Bordertown, as follows :—" The reason why your cherry trees bloom freely but fail to set fruits is very difficult to locate, more especially in the absence of exact knowledge of the full circumstances surrounding the difficulty. For instance, the flowers may be affected by frost, or extremely cold, cutting winds just at the critical time when fertilisation takes place ; secondly, the soil and climatic conditions generally in the locality may in other directions be working against the proper maturing of the flower-buds and growth of the tree at the right season of the year ; thirdly, the stocks on which the cherries are grown may be over-vigorous, and this would certainly tend to operate in the direction indicated in the second reason given, viz., the improper ripening of the wood and buds."

A Station Homestead.

IN MEMORIAM.

Albert Molineux, F.L.S., F.R.H.S. Born July 11th, 1832; died June 6th, 1909.



The name of Mr. Albert Molineux has been closely associated with agricultural matters in South Australia for the past 35 years, and it is doubtful whether any other man is entitled to a greater share of the credit of the advances in agricultural practices which have placed the South Australian producers in the sound position they occupy to-day. In his death, which took place on Sunday, June 6th, the agricultural community generally and the State as a whole has lost a valuable servant.

Mr. Molineux was born in Sussex, and came to South Australia with his parents in January, 1839, when about 7 years of age. After leaving school he worked on a farm near Adelaide for a few years and then was apprenticed as a printer. Like so many others, he left South Australia in 1851 for the gold diggings, spending nearly four years at that industry. On his return he again turned his attention to the land, for a while with his father on the Gilbert, but later on he worked at his trade as a printer.

Always deeply interested in matters connected with natural history, he studied all the literature dealing with the subject that he could secure. His early associations gave him a special interest in agriculture, and he took a prominent part in both the Agricultural and Horticultural Societies in the early days. An observant man, with a wonderful memory and the ability to express his ideas on paper, he took naturally to journalistic work.

In August, 1875, Mr. Molineux issued the first number of the *Garden and Field*, and a few years later accepted the position of Agricultural Editor of the *Register* and *Observer*, which he held until 1891, when he found the work of the Agricultural Bureau required all his time and energy.

A firm believer in the possibilities of South Australia as a producing country, and during a period of 35 years a persistent advocate of the value of scientific agriculture as applied to the farm, orchard, &c., he believed that what could be done in other countries could, with due allowance for altered conditions, be accomplished here, and he accordingly preached scientific agriculture as based upon results achieved in Europe and America. The following extract from his introductory note in the first issue of the *Garden and Field* is significant of all his later work :—" First of all, as no country ever has or can prosper where agriculture is neglected, we wish to see the best system of farming initiated and sustained. The almost total absence of any scientific principle in the method of farming pursued in this colony calls loudly for improvement. We cannot keep on everlastingly cropping the ground with cereals and returning nothing to the land in the shape of manure, alternative crops, fallow, &c. It will be our duty to point out this error until rectified, and to put before our readers any information that may come within our reach, or which may be suggested by friends interested in this most important source of national wealth." He then referred to the necessity for economy of labor in the matter of improved machinery, the conservation of our propucts, especially of orchards and vineyards ; and, dealing with surplus fruits, he remarked, " The best method that presents itself is by drying or otherwise preserving the surplus for exportation to countries less favored in this matter than we are."

In addition to being a strong advocate for the development of the natural wealth of the country, he believed that the South Australian mechanic could produce implements more suited to local conditions than the imported article, and his faith in this direction has been amply justified. Writing some 25 years ago on this subject, he said, " Above all patronise local industry in preference to foreign importations, unless fully convinced that the latter are far superior and much cheaper."

Mr. Molineux preached without ceasing the necessity for the conservation of water, forests, feed, and other national resources; but he met with scant support in his early days, and the idea—now so forcibly brought home to the community—that the continued destruction of timber without proper provision for the future would result in disaster was ridiculed by many. Unfortunately he did not live to see the realisation of a fraction of the possibilities in water conservation in this State. Space does not permit of any lengthy reference to his work in connection with the development of the fishing industry; but here also he rendered valuable service to the State.

It is, however, in connection with the Agricultural Bureau of South Australia that Mr. Molineux will be longest remembered. Established in 1888 as the outcome of his suggestions (made to the Vegetable Products Commission of 1887) as to the best means of advancing the producing interests of the State, he was one of the original members of the Central Agricultural Bureau. The objects and constitution adopted by the Central Bureau were practically those outlined by Mr. Molineux before the Commission referred to, and when the difficulty of securing a suitable man as secretary seemed like wrecking his scheme, he offered to carry out the duties for a time without payment. Finally he was induced to accept the secretaryship, and as this necessitated giving up his literary work, it was at a considerable monetary sacrifice. Mr. Molineux retained the position of General Secretary of the Agricultural Bureau until June 30th, 1902, when he tendered his resignation to facilitate the reorganisation of the Agricultural Department. Appointed a life member of the Council of Agriculture (now the Advisory Board), he rendered further service to the department in an honorary capacity.

The history of his work as General Secretary of the Bureau is too well known to need much reference; the results achieved by the Bureau are the best testimony to his success. At Bureau Congresses and Conferences he was a host in himself; his wide range of knowledge on practical and scientific agriculture, combined with a splendid memory, enabled him to furnish information on practically every subject that came under notice. He was often referred to as a " Walking Encyclopædia," and merited that description. In his advocacy of the use of manures, the fallowing of land, rotation of crops, scientific dairying, the protection of our farms, orchards, stock, &c., against the introduction of insects and disease, the spraying of trees, the development of an export trade, &c., he was many years in advance of the times; but, as he said in his opening notes in the first issue of the *Garden and Field*, he felt it his duty to continue to point out errors in practice until rectified.

Mr. Molineux was earnest, straightforward, possessed of boundless energy, and unusually high ideals of his duty to his fellow men. Very sincere in his friendships, he was loth to believe ill of anyone. Of him it can be truthfully said, " He was a great and good man."

Resolutions expressive of appreciation of Mr. Molineux's service and regret at the news of his death have been received from a large number of Branches of the Bureau.

OUR EXPORT TRADE.

HINTS FROM MAJOR NORTON.

Major Norton, the Commercial Agent in London, is now in South Australia on a visit of instruction. Most of his time will be employed in lecturing to the Agricultural Bureaus and other public bodies interested in our export trade with Europe. To a representative of the *Journal of Agriculture* he gave some impressions derived from his work in England during three seasons.

CENTRALISATION IN LONDON.

"I have come to the conclusion," he said, "that altogether too much of our produce is centred in London as a market. My reasons for thinking so are—firstly, that the dock charges, rates, and commissions are higher in London than in any other part of Great Britain; and secondly, that a minimum of handling is desirable, especially as regards lamb. In London ships do not come alongside the cold stores; they discharge into lighters which go up the river to the cold store. A large quantity of the plainest of our mutton and lamb is eventually consumed in Lancashire and Yorkshire. That entails, in addition to all this handling, a long railway journey and railage, whereas if a proportion of our lamb was distributed at Avonmouth, Liverpool, Manchester, and Hull, it would be landed right in the centre of the people who consume it, and the handling would be limited, because at all these ports the ships conveying it go right alongside the cold stores."

PROVINCIAL PORTS CHEAPER.

"Again, you can store in an outside port for three months for what it costs to store for one month in London, and by taking the meat to the provinces you relieve the glutted market in London, and so get a better price there for what remains. But even if you do not get better prices you have less claims to make on the insurance companies for damaged goods. That is a serious item, because during the last few seasons the claims for damages have been so heavy that the insurance rates have mounted up year by year. These frequent claims for broken shanks and mishandled carcasses would not occur at the outports, where the handling is so much less than in London. In the metropolis the lighters often discharge at night, and you cannot be always watching them. Rain may fall in torrents on the meat when the tarpaulins are off, and the carcass, entering the cold store in that condition, becomes misshapen. Last year the insurance companies found that the amount paid in claims far exceeded the premiums."

THE APPLE TRADE.

"At present nearly all our apples go to Covent Garden, London; why, I cannot make out. Within a 10-mile radius of Birmingham live 2,000,000 people. The railway freight on apples from London to Birmingham is 20s. a ton, while from Bristol it is 11s. 8d., a saving of 8s. 4d. a ton. If London must be the market—which I do not concede--why not sell in London and deliver in Bristol for the Birmingham trade? Under present conditions you may have 100,000 cases of apples dumped into Covent Garden, utterly depressing the market, while the rest of England has none."

A QUESTION FOR SHIPPERS.

"I want to bring this subject before the Chamber of Commerce and to suggest that they should work in with the Chambers of Commerce of the other States. I have put the matter before the shipping people in London, and their answer is, 'What inducements will you give us?' That means that if we can put the stuff up in sufficient quantities they will take it to the outports, but they will not run to Hull with only 1,000 carcasses of lamb."

BUTTER EXPORT.

"The same thing happens with butter. My experience is that all the Government butter I have had to sell has been sold outside of London, in the provinces, and yet all of it has been landed in London. The same firm which sells the butter in London has agencies in Bristol, Manchester, Liverpool, Hull, Glasgow, and Edinburgh, so it would make no difference to them if the butter was delivered direct to those places; but the advantage would be that it could be distributed much more cheaply than if landed in London. There is no doubt it is vested interests which cause everything to centre in London."

EGGS AND HONEY.

"I have established the fact that South Australian eggs and honey can be sold in the United Kingdom in any quantities we are likely to produce. That is a great advantage to our producers, because it means that with such an outside market they should be able to prevent local prices from falling below the paying level."

PLUMP CHICKENS WANTED.

"With regard to poultry I must say a word of warning. Ducklings and chickens are wanted in England during the months of March, April, and May, but it must be those with the maximum of meat and the minimum of age. It is no use to send poultry such as was forwarded two years ago, because it will not pay for freight. The birds must be well fed and in good condition, and in the months I have mentioned there is an unlimited market for such."

ADVERTISING OUR PRODUCTS.

"One thing that struck me was that such a large proportion of our produce lost its identity when it got to London, so that a number of the retail grocers do not even know our stuff by name. To overcome this difficulty I have not only shown our produce in leading centres of England, but have followed it up. I commenced this system during the Franco-British Exhibition, where I arranged with the largest retailers in London to stock our goods, and I had a card printed and placed over the exhibit—'This fruit may be purchased from such and such firms.' I supplied these retailers with all the lines I was showing, and they did what had never been done before; they showed the fruit in their windows surmounted by cards inscribed 'South Australian Raisins,' 'South Australian Apricots,' or 'South Australian Apples,' as the case might be. I have acted in the same way in provincial towns where our fruit has been shown. It is my intention to place a recommendation before the Government to carry out this scheme to a greater extent than hitherto.

"I have given lectures throughout Great Britain under the auspices of chambers of commerce, merchants' associations, retail grocers' associations, and kindred societies. I have shown lantern slides displaying the progress made by our State, especially during the last few years. Usually I throw open the meeting for half an hour to allow of questions being asked, and as a result I have been able to tell wholesale and retail dealers where they can purchase the goods I have been talking about, and in many instances business has resulted."

THE WHEAT CABLES.

"The sources from which I secure my information concerning the wheat market which I cable daily to the South Australian Government are absolutely trustworthy. It is obtained from the Baltic Exchange, London, at 5 o'clock every evening, includes all the business that has taken place on that day, and is telegraphed at once to Adelaide. I have a similar arrangement with Liverpool."

ANTHRAX AND SYMPTOMATIC ANTHRAX.

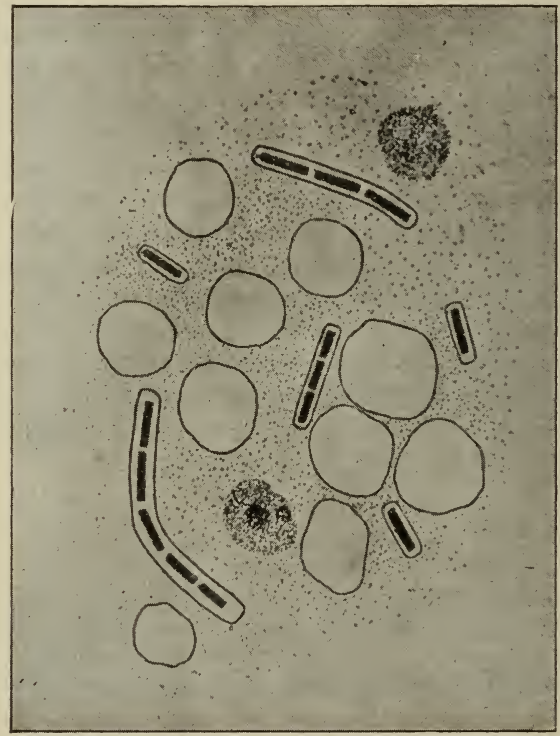
By Veterinary Surgeon Desmond.

ANTHRAX.

This is one of the oldest known diseases of animals. Nearly all animals are affected, but vegetable feeders are most susceptible to it. The disease is also known under other names—splenic fever, splenic apoplexy, and when it affects man—malignant pustule and woolsorter's disease. Anthrax is an infectious disease, being caused by a micro-organism, or germ. The disease is known all over the world, and in Australia great losses have occurred in the flocks and herds in the different States, as well as numerous deaths in man. In this State, outbreaks have been recorded in horses, dairy cattle, pigs, and recently at Kadina in horses and cattle. As a result of these outbreaks five men became affected with the local form of the disease—malignant pustule. Anthrax is communicated to man either by directly or indirectly handling portions of the carcass of animals that have died of the disease, and for this reason the disease is most common in butchers, slaughtermen, and tanners. Once the disease has occurred in a locality, further outbreaks may take place at any future time, as the spores are very difficult to destroy and can resist extreme heat and cold. Any portion of the diseased carcass, such as wool, hair, hides, hoofs, horns, etc., may serve to convey the infective material.

The Cause of the Disease.

Anthrax is due to the presence in the animal body of a specific micro-organism, known as the bacillus anthracis. This is best described as a tiny rod measuring one twenty-five thousandth to one five thousandth of an inch long, and one twenty-five thousandth of an inch broad. When cultivated under artificial conditions, or when blood is exposed to the air, the rod-shaped bodies develop spores or seeds. Spores are not formed in the animal body during life; they are formed after the death of the animal. It is on account of these spores that it is so hard to get rid of the disease in affected pastures; and this is especially the case if they are wet or marshy. The spores may remain dormant in the soil for years, and it sometimes happens that the disease does not make its appearance until long after the introduction of the virus, so that it is often very difficult to trace the origin of an outbreak; and also for this reason an outbreak in a locality is not necessarily introduced from outside sources. Animals become affected in three ways:—1. By taking the spores with the food. This is the usual method of infection in horses, cattle, sheep, and pigs. 2. By inhaling the spores. In man this form of infection is common in woolsorters, being known as woolsorter's disease—a form of anthrax which is usually fatal, and which has been reported to cause 500 deaths annually in Great Britain. 3. Infection through the skin. This is less frequent in animals than in man, in whom malignant pustule is the most common form of the disease. This is easy to understand when it is known that the smallest abrasion is sufficient to admit the virus ; and cases of malignant pustule have been known to have been caused by bites of flies, the flies carrying the infectious material from animals affected with anthrax. In the first case of anthrax in man reported in this State a pimple on the forehead was the seat of the infection, and was rubbed while skinning a cow which died of anthrax. In this outbreak several pigs and dogs which consumed the flesh of the cow died from the disease. In another case in man, the sore of cowpox was the seat of infection. In the human subject the disease when local soon becomes generalised if not subjected to proper surgical treatment, and death soon takes place from anthrax septicæmia.



Anthrax Rods in Blood. Highly Magnified.

SYMPTOMS.

One of the most characteristic features of the disease is the suddenness of the attack. The animal affected becomes ill quite suddenly, staggers about and falls, death taking place from convulsions in from a few minutes to an hour; often with a bloody discharge from the mouth, nostrils, and anus. A cow may seem to be in perfect health, feed, ruminate, and give her usual quantity of milk, and in a few hours may be dead of anthrax. This is known as apoplectic anthrax. Sometimes the disease runs a longer course, death taking place within 24 hours. In these cases the temperature sometimes rises as high as 108° F. before death; there are brain complications, the affected animal showing great restlessness and excitement, bellowing, running to and fro, later, convulsions and death as if from apoplexy. Where the lungs are affected the breathing becomes very difficult and much accelerated, with panting and groaning, followed by death from suffocation. Less frequently the course of the disease is two or three days, or even longer. The symptoms are the same as those of acute anthrax; that is to say, congestion of the lungs and brain are clearly marked and often accompanied by severe colic pains, especially in the horse. In anthrax of the pig there are often enormous swellings of the throat. Sometimes anthrax in animals takes the form of carbuncles—the common form in man. This is when infection has taken place from inoculation of the skin or mucous membranes. These carbuncles take the form of swellings, at first hard, hot, and painful; afterwards becoming cold, painless, and with a central black, dead area, surrounded by vesicles and a reddened zone, and all the tissues in the neighborhood being œdematous.

DIAGNOSIS.

As death usually takes place so rapidly in this disease without very distinctive symptoms, it is often the case that a positive diagnosis can only be made by bacteriological methods. In animals just dead, anthrax bacilli can be found in properly stained cover glass preparations made from the blood or tissues. In cases where microscopic examination is not definite, it is necessary to resort to inoculation of small animals, such as guinea pigs. Small quantities of blood from animals affected with anthrax injected under the skin of these animals cause death in short periods, and the blood and tissues are found to be teeming with anthrax bacilli. Anthrax is sometimes confused with other diseases, the suddenness of the attack and the short duration of the disease often leading to it being mistaken for poisoning. Anthrax must also be distinguished from symptomatic anthrax and hæmorrhagic septicæmia. All doubt is settled by bacteriological examination. Anthrax has been mistaken for septicæmia, of which indeed it is a specific variety, as also is symptomatic anthrax; that is to say, both anthrax and symptomatic anthrax are forms of blood poisoning, each having a distinctive name and being caused by recognised organisms.

Post-mortem Appearances.

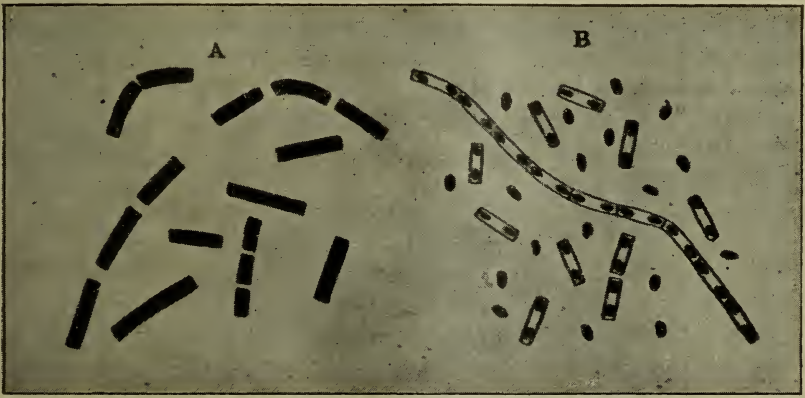
The most common *post-mortem* changes, except in the apoplectic form and in cases of the local carbuncle, are :—1. Blood-stained areas, varying in size from small spots to large patches, occur under the skin, mucous membranes, and under the membranes lining the chest and abdomen. 2. The spleen is considerably enlarged, often being five times the normal size, and the liver and kidneys are sometimes enlarged to a less or greater extent. 3. The blood is very dark, tar-like, and does not coagulate, nor does it assume its normal red color when exposed to the air. The lungs and brain are greatly congested. Very frequently blood escapes from the mouth, nostrils, and anus of the carcass, and sometimes the mucous membrane of the rectum is everted. In cases where animals have died of the acute forms of anthrax the usual *post-mortem* appearances may not be present; but in all cases of anthrax the organism can be demonstrated as already stated. It is only by a bacteriological examination that a positive diagnosis of anthrax can be made.

Treatment.

As the mortality in this disease is from 70 per cent. to 90 and 100 per cent. in apoplectic anthrax, and as affected animals are dangerous to man, as well as to all other stock, treatment is neither safe or satisfactory. Immediate destruction of affected animals is necessary, as well as thorough destruction of anthrax carcasses, and efficient disinfection of contaminated stables, cowhouses, yards, &c. The administration of drugs as a preventive is useless. Cremation is the best method of disposal of the carcass. The most convenient method of carrying this out is as follows :—A trench is dug in the ground the shape of a cross, each trench being about 6ft. long, 18in. wide, and 18in. deep. The earth removed is thrown into the angles formed by the trench, and on this is placed two stout pieces of iron, to prevent the carcass falling into the trench. The use of the trench is to provide the needful draught. A layer of heavy wood is placed on the top of the iron bars, and on this the body is placed and more wood heaped on top. The pile is lighted from below with the assistance of kerosine. The ashes should be raked out of the trench from time to time to keep the air passage clear. On no account should the bodies be opened if burial is practised. Any blood and discharge should be first collected and buried or burned with the carcass. The danger of feeding pigs on portions of any animals that have died suddenly should be borne in mind by stockowners. The disease is best kept in check by careful isolation, proper disposition of the bodies of animals which have died of the disease, and thorough disinfection of all infected buildings, yards, &c. When an outbreak has occurred on a farm all animals should be removed from the sheds, or yards, or pastures which are infected. The temperature of all animals on the place and all those which have come in contact with the diseased animals should be taken morning and evening for one or two weeks after they are removed, and all those which show an elevation of temperature should be isolated, the rise in temperature being the first symptom of the disease.

Preventive Inoculation.

Partial immunity from anthrax may be obtained. Protective inoculation was discovered by Toussaint, but Pasteur was the first to prove that immunity could be obtained by the use of cultures of attenuated bacteria. Pasteur's method consists in inoculating the animal with a small quantity of a pure culture of anthrax that has been grown at a temperature of 108·5° F. for 24 days.



Anthrax Rods from Culture. A. Rods without Spores. B. Rods with Spores.

Growing the organisms at this temperature deprives them of their virulence. The animals are a second time inoculated in from 10 to 14 days from a culture grown for 10 days at the same temperature. Except in districts where anthrax is very prevalent the value of inoculation is an uncertain quantity. In England and France the stamping-out system is considered superior to inoculation. Under no circumstances should inoculation be practised except by a qualified veterinary surgeon.

Disinfection.

The best method of dealing with infected buildings and pastures is by the use of fire, which is far more effective than the use of disinfectant solutions. Even wooden buildings can be disinfected by this means without risk, with a painter's benzine lamp. It is not necessary to carry the process on so far as charring the wood, and in the case of paintwork the surface is only blistered, after which it can be scraped off. The walls, windows, &c., should first be brushed down, and if the walls are not to be burned, the old limewash should be scraped off. All the contents of the buildings should receive attention, including mangers, cow bails, &c., All scrapings from walls and floors, bedding and manure should be collected, taken outside, and burned. The floor should not be neglected, and if not burned should be washed with boiling water containing 5 per cent. carbolic acid. The interior of the buildings should afterwards be limewashed, using fresh slaked lime and adding half a pint of crude carbolic acid per gallon. Where burning the walls and contents of buildings is not carried out, they should be washed down with some disinfectant solution, such as hot water containing 5 per cent. crude carbolic acid. The addition of 1¼ozs. of sulphuric acid per gallon renders this more effective. Formalin (40 per cent. formaldehyd), one part to 40 of water, is also a suitable disinfectant. These solutions are much more effective and thoroughly applied with a spray-pump than a brush, as by means of the former all corners and crevices are reached. Nothing which has come in contact with the diseased animal should escape disinfection, and anything which cannot be properly disinfected should be destroyed by burning. If the carcass of an animal suffering from anthrax has been opened, either for *post-mortem* examination or for any other reason, it is advisable to burn the surface of the ground where the carcass was lying. This may be done by burning straw over the surface.

PRECAUTIONS.

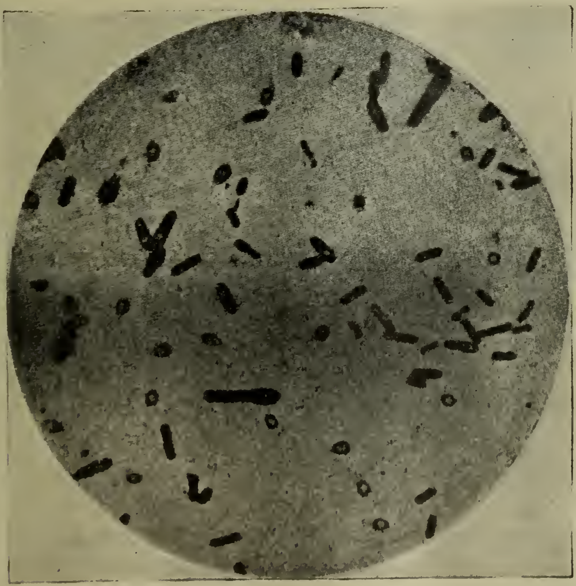
The following notice has been issued by the Royal Agricultural Society of England :—" Notice.—Danger of handling carcasses of animals dead of anthrax (splenic fever). Several cases of serious and some of fatal infection have occurred in persons who have been employed in cutting up carcasses dead of anthrax, and it is important that the public should be made aware of this source of danger to human life. It is well known that the blood in anthrax, and all parts of the body containing blood, are highly infective ; and persons who have any abrasions, however slight, on their hands or arms should carefully avoid touching any portion of the carcass of animals which have died of this disease, or been slaughtered while suffering from it. The same care is required in dealing with fodder, litter, manure, or other things which may be contaminated with the blood of diseased animals. Carcasses of animals dead of anthrax should be buried entire, without being skinned or cut, and be well covered with quicklime and not less than 6ft. of earth."

SYMPTOMATIC ANTHRAX.

The first authentic outbreak of symptomatic anthrax in this State occurred during the month of April, in a flock of sheep at Virginia. As outbreaks of comparatively little known diseases like symptomatic anthrax are sometimes put down to poisoning by the plant called stinkwort (*Inula graveolens*), the importance of laboratory diagnosis in doubtful cases of disease in animals is readily perceived. This disease was at one time regarded as a form of anthrax, hence it was called symptomatic anthrax. It is also known under the names of quarter-ill, black leg, black quarter—all these names having reference to the swellings which are the most characteristic local lesions of the disease, and which are often located upon the hind quarters or shoulders. The disease is quite distinct from anthrax, and is caused by an organism which lives and multiplies in the soil, especially in wet and marshy places; and the disease does not spread from animal to animal. Cattle, sheep, and goats are affected, the disease being most common in cattle about two years old, but also occurring between the ages of from six months to four years. Sheep are more rarely attacked than cattle, and in this animal age seems to have no influence.

The Cause of the Disease.

Symptomatic anthrax is caused by a rod-shaped micro-organism, one-eight thousandth to one two thousand five hundredth of an inch long by one fifty thousandth of an inch broad, which is found in the extravasated blood, in the tumours, in the intestinal contents, and always in the bile. Unlike the organism of anthrax, this bacillus forms spores in the animal body during life, and these spores give a characteristic appearance to the germ. It also differs from anthrax in that it does not require the presence of air for its development. The infective material gains access to the system by means of injuries to the skin or mucous membrane, and this is very likely to happen during the time the milk teeth are being shed.



Bacillus of Symptomatic Anthrax X 2,000. (Magnified 4,000,000 Times)

SYMPTOMS.

The symptoms of symptomatic anthrax may be either general or local in character, though more frequently the latter. The general symptoms resemble those of all acute infectious diseases in having a short period of incubation, after which there is loss of appetite and rumination, dullness, debility, and high fever. The local symptoms take the form of swellings, which appear on any part of the body except below the knee and hock. They usually affect the quarter or shoulder, when lameness and stiffness in the gait becomes very noticeable. The swelling is painful at first, spreads rapidly, and soon becomes filled with gas, which may be noticed when the hand is passed over it. The swelling soon becomes dry and papery at the centre and painless upon pressure. If opened a dark-reddish frothy fluid flows from the wound, which also emits a peculiar-smelling gas. The swellings of symptomatic anthrax differ from anthrax carbuncles, which are hard and solid and do not contain gas.

POST-MORTEM APPEARANCES.

The skin covering the swellings of symptomatic anthrax is dry and dead. The muscles underneath are dark-brown or often of a blackish color. When incisions are made into them frothy blood escapes from the cut surface. The belly cavity usually contains a large amount of bloody fluid. The spleen is normal. The blood is of a normal color, and coagulates readily.

DIAGNOSIS.

Symptomatic anthrax must be distinguished from anthrax. The characteristic tumour of symptomatic anthrax is usually sufficient to distinguish it from any other disease. The unchanged spleen and ready clotting of the blood distinguish it from anthrax. In all doubtful cases it is necessary to resort to the more definite methods of microscopic examination, artificial cultivation, and animal inoculation. Cover-glass preparations from the tissues usually exhibit the specific bacteria; when ordinary culture media is inoculated with symptomatic anthrax little colonies appear in the lower parts of the tube, the organism only growing when oxygen is absent. There is also considerable gas production. When susceptible animals, such as guinea pigs, are inoculated by placing a minute quantity of a pure culture or some of the material from the swelling in the connective tissue under the skin, the bacilli multiply and produce the disease, from which the animal dies in one or two days. The characteristic *post-mortem* appearances are present and the organism can be found in the tissues.

TREATMENT.

In this disease all remedies have proved unavailing. The mortality is very great, and practically no affected animals recover. Death sometimes takes place in two hours, and in sheep it is even more rapid. Protective inoculation is practised in those countries where the mortality from this disease is very high. This is done with virus attenuated by heat, and injecting a small quantity under the skin. The inoculating medium is put up in the form of pellets, which are used with a special syringe, and also in the form of pieces of cord, which are inserted under the skin with a special needle.

PREVENTION.

Dead animals should be burned, if possible, otherwise buried deeply and covered with quicklime. The swellings should not be opened, as the discharge from them infects the pastures. It is advisable to remove healthy animals from infected pastures, or at any rate to prevent young animals from having access to them. It is desirable to disinfect the ground where the animal lay at the time of death by burning straw over it. As the virus exists in the soil, especially in wet and marshy districts, it is advisable to drain where necessary.

* * *

A NEW MOTOR DRILL.

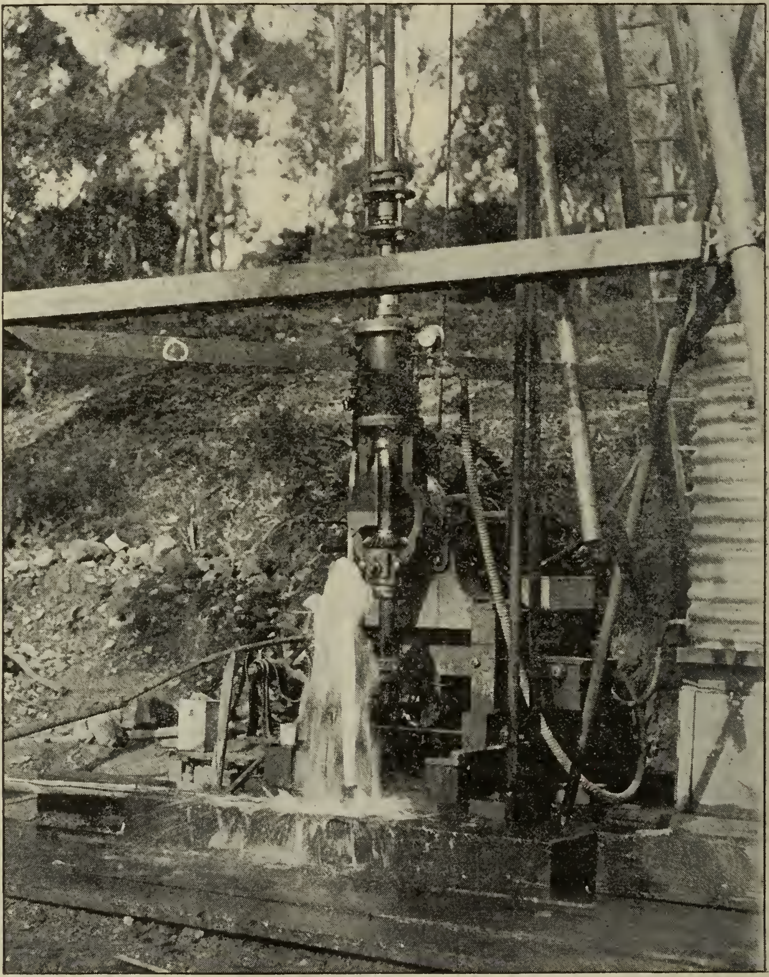
The accompanying photograph is a picture of a new motor drill which was designed by Mr. C. F. Duffield, of the Mines Department, for use of that department for prospecting for mineral oil, water, &c.

This machine is said to possesses many advantages over heavier drills. Its chief recommendation is its portability. Being made of the finest material obtainable, it is very light, and yet strong enough to stand the greatest strains it may be subjected to.

The drill is driven by an eight-horsepower twin cylinder petrol engine, at a cost of about 3s. per day for fuel. This is much cheaper than steam power, and far more convenient, as the motor dispenses with all firewood and boiler troubles. Besides the saving in fuel there is also a saving in wages, as only two men are required to work the plant.

Both steel bits and diamonds may be used with this machine. For diamonds there is a patent cone clutch brought into play, which can be so adjusted as to slip when any undue strain comes upon the rods, thus preventing any damage to the diamonds. Hydraulic pressure is used to force the rods down.

This handy little machine, which only weighs two tons, is capable of boring to a depth of 1,000ft. at a cost of from 3s. to 5s. per foot, and obtains a solid sample core of the country passed through. By the accompanying photograph may be seen some of the good work done by this machine. Under the direction of the Government Geologist a bore was put down on Mr. H. M. Martin's property, at Stonyfell, and at 50ft. to 55ft. a beautiful stream of artesian water was struck, which flows to the surface at the rate of 4,800galls. per hour. It is Mr. Martin's intention to use this water for irrigation purposes. Other tests for artesian water are about to be made with this handy machine; landowners, who are paying cost of boring, being desirous of availing themselves of water for irrigation if obtainable. Being portable, the machine can easily be removed from place to place, and could be used in the search for water or minerals throughout the country.



A New Motor Drill.

ROSEWORTHY AGRICULTURAL COLLEGE.

THIRD REPORT ON THE PERMANENT EXPERIMENT FIELD—SEASONS 1907-8 AND 1908-9.

By ARTHUR J. PERKINS, Principal Roseworthy Agricultural College, and
W. J. SPAFFORD, Assistant Experimentalist.

(*Continued from page* 928 *of June issue*).

SECOND SERIES—MANGOLDS.

The mangold is the typical spring-sown crop of moist and relatively mild climates, needing both moisture and warmth in sufficient quantities for its full development. As such it is a biennial plant, that is to say, one that runs to seed in the second season of its growth. Without having recourse to irrigation, which of course would shut out Mangolds from the ordinary run of farm crops, we could not hope in this district to make any success with them if spring-sown. We determined, therefore, to ascertain what could be done with this crop on autumn sowing. Hence, both in 1906 and 1907, Mangolds took part in our rotation experiments. On the whole, however, they did not prove altogether satisfactory. They showed a tendency to hang fire in the cold winter months, and on the first approach of warm weather to run up to seed without having produced roots of any great value.

The total yield from Plot No. 9 in 1906 was 20 tons 8cwts. 105lbs. per acre (roots and tops included); whilst in 1907, with its much severer winter, the yield from plot No. 8 did not exceed 2 tons 17cwts. 57lbs. to the acre.

We have been compelled to the conclusion, therefore, that in this district and those similarly situated there is nothing to be gained by attempting to grow Mangolds without irrigation, particularly when it is recollected that this crop involves much expense in the way of weeding and thinning out, which heavy returns alone would justify.

KALE.

In 1908 we decided to substitute Kale for Mangolds at the head of the Second Series rotation. Kale had for several years been grown on the College farm as an ordinary farm crop, with considerable success; and we are inclined to believe it to be well worth a position in any rotation terminating in Wheat. It possesses many advantages over most fodder crops that are available to us, and is equally at home in countries in which the bulk of the rain falls in winter, and those with relatively moist summers. In the cool moist districts, in which it can be sown or planted out in spring, it will yield an abundant supply of succulent feed in the early winter months, a time when the latter is frequently absent. In the drier districts, such as our own, it will with equal appropriateness furnish succulent feed from early to midsummer. From the latter point of view it affords an excellent means for weaning off ewe lambs that are being retained for breeding purposes.

In our experience Kale should be sown as early as possible in the autumn, generally not later than April, on a well-prepared piece of land. We have never found it necessary to bare-fallow the land that is to receive the kale crop, but have usually sown it on the stubble of a cereal crop broken up late in summer and worked down subsequently to a suitable condition of tilth. It is essential to recollect that, like cabbages, Kale stands in need of a perfectly prepared seed bed. The main objection to the practice we have hitherto followed lies in the fact that the Kale plants are apt to be smothered in the weeds that always spring up on a cereal stubble, and to secure the best results the crop must be repeatedly horse-hoed. Hence when possible a Hay or Ensilage stubble should always be preferred to a Grain stubble, and heavy land to light land. For sheep feed we always give the preference to Thousand-headed Kale. The seed is sown at the rate of 1lb. of seed to the acre, carefully mixed with ½cwt. of finely ground bonedust, placed in drills 32in. apart. The crop may be fed down two or three times in the course of a season, and as late as January in favorable seasons.

1908.—The Kale sown in plot No. 7 was not drilled in until May the 7th, that is to say somewhat later than our usual practice : it did not germinate until May the 19th. The plot was horse-hoed three times before sheep were first placed on it on October 20th ; and, although it made on the whole fair progress, its growth was nothing like it would have been had the Kale been sown earlier in the year. This plot was grazed from October 20th to January 15th, and during that period carried sheep for 82 days at the rate of 7·6 sheep to the acre, representing 1·71 sheep to the acre per annum. These figures are much below what we have found to be the carrying capacity of well-grown kale when treated on the College Farm as an ordinary farm crop ; indeed, we usually look to an acre of kale as capable of carrying from four to five sheep for the year.

The total increase in weight per acre acquired by the flock whilst on the 1908 Kale crop we found to be represented by 283lbs.

Horse Beans.

For two years—1906 and 1907—we turned to Horse Beans in this rotation as a possibly suitable leguminous crop immediately to precede the wheat crop. Ultimately, however, the results proved so unsatisfactory that we felt compelled, for the time being at all events, to set aside Horse Beans altogether. In 1906 plot No. 7, which was under Beans, yielded 13cwts. 56lbs. of Total

Produce to the acre and 2bush. 16lbs. of beans; whilst in 1907 caterpillars had eaten down leaves and pods to such an extent that what was left was not worth harvesting. It is not easy altogether to account for failures so complete with a relatively hardy crop such as Horse Beans. We are not, therefore, yet prepared to condemn it as altogether unsuitable to the district, and may perhaps on some future occasion give Horse Beans a more extended trial.

VETCHES.

In 1908 winter vetches were made to replace horse beans in the rotation plots of the second series. Whether or not they are at all likely to prove more satisfactory than the latter we are not yet in a position to determine. In any case, however, they will need to give better results than was the case last season. It should be added that the vetches were probably sown too late in 1908 to show off to best advantage. They were drilled in 8in. apart at the rate of 40lbs. to the acre on May 25th, and did not germinate until June 13th. They were fed down with sheep between September 12th and October 28th for a period of 41 days at the rate of 17·7 sheep to the acre, which represents 1·99 sheep for the year.

The total increase in weight acquired by the flock on vetches was represented by 135lbs. to the acre.

We summarise below in Table IV. the results recorded in 1907 and 1908 for the feeding down of the various forage crops that were tested in our rotation plots:

TABLE IV.—*Summarising Feeding Down Experiments in Rotation Plots.*

Crops.	Period Grazed.	Number of Days Grazed	Sheep per Acre for Days Grazed.	Equivalent Sheep to the Acre for the Year.	Total Increase in Weight of Flock per Acre.
					Lbs.
Early sown turnips	Aug. 18 to Oct. 1 .	23	52·6	3·31	—
Late sown turnips..	Sept. 28 to Oct. 19	22	47·1	2·84	81
Peas	Oct. 28 to Dec. 10.	44	14·5	1·75	285
Kale	Oct. 20 to Jan. 15.	82	7·6	1·71	283
Vetches	Sept. 12 to Oct. 28	41	17·7	1·99	135

We do not in any way wish to put forward the figures of Table IV. as settling definitely the relative merits of the forage crops under review for the district. Some of them, we are quite aware, might have shown to better advantage had they received more favorable treatment; and we trust that in future reports we shall be in a position to render them fuller justice. Here, therefore, we shall content ourselves with drawing attention to the second column of the Table, with the comment that in a dry district such as our own the extent to which the grazing period of a forage crop extends into the drier months of the year is frequently of greater value to the farmer than its mere carrying capacity. Thus, so far as carrying capacity is concerned, the advantage would appear to lie with early-sown turnips. This advantage, however, loses much of its value when it is recollected that the crop is available to us only for a few days in the year, and at a time when all ordinary sources of pasture are at their best.

Oats.

There is little of interest that we have to say as to Oats. We shall remark, however, that in our opinion this cereal is not as well adapted to the district as Barley. True, at times we have seen in the district magnificent crops of Oats; these are, however, in our opinion far outnumbered by the poor ones. The great difficulty with Oats in rotation in this district is represented by the fact that to succeed at all they must germinate early in the season, which implies that they will be surrounded by weeds against which the slowness of their early growth does not enable them to struggle very successfully.

Unfortunately we are not in a position to boast of the Oat crops raised in the rotation plots in the last two seasons. What can be said concerning them is detailed below.

1907.—In 1907 plot No. 9 was sown to Liggowo Oats, a white oat imported by the College from France. It was drilled in at the rate of 75lbs. of seed to the acre, and germinated successfully on the 25th. In the preceding year in a neighboring plot we had practically lost a Cape Oat crop that had been badly lodged by rough weather; in June we had reason to believe that a similar fate awaited our Liggowo Oats. The plot was not fenced off, and could not therefore be fed down with sheep. On June 22nd we cut it down uniformly with a grass-mower. Unfortunately the balance of the winter and spring was unusually dry, and the oats never recovered from this drastic treatment, and ultimately we reaped no more than 1bush. 25lbs. to the acre.

1908.—In 1908 Plot No. 8 was sown to Calcutta Oats on May 25th—that is to say, altogether too late in the season for this district—at the rate of 80lbs. of seed to the acre. At harvest-time Total Produce was represented by 1 ton 5cwts. 78lbs. to the acre, and Grain by 12bush. 4lbs. to the acre.

Comparative Net Returns from Rotations Tested.

We propose ultimately comparing the net pecuniary returns from these rotations with those secured from wheat grown alternately with bare fallow. We feel, however, that very little value would attach to any such comparison until we had succeeded in gathering together a mass of data adequate to the purpose. For the present we cannot claim to have attained to this stage; and in any case, however complete our present data, no such comparison would be valid until we had in hand returns from a wheat crop grown on a plot that had four years previously carried a root crop. And, although, in 1908, we find ourselves in the fourth year of experimental work in this direction, certain unavoidable irregularities of the first year debar us from taking it into consideration in any such comparison. This interesting question must therefore be left to the discussions of future years, and we must rest satisfied for the present with having shown that in this district wheat can be grown successfully in rotation.

FOURTH SERIES.—WHEAT AFTER A SUMMER FALLOW CROP.

There is nothing new in this form of rotation; indeed in the past it has frequently been recommended that land prepared as bare fallow for wheat might in the summer months of the year carry with advantage some such summer fallow crop as sorghum, millet, maize, &c. There are different ways in which such a crop could be disposed of. It might either be cut down as it comes available and fed to cattle, or it might be chaffed into ensilage pits; or again it might be fed down directly in the field by live stock. It should be understood that we refer here to such crops grown solely with the aid of what summer rains happen to reach us, and altogether independently of artificial irrigation. In this direction, since the inauguration of these experiments, we have been singularly unfortunate in our summers; without exception the four summers under consideration have been very unfavorable to summer-grown crops. Below, in Table V., we show what has been the rainfall for the months that count in this direction.

TABLE V.—*Showing Distribution of Summer Rainfall*, 1905–1909.

	1905-6.	1906-7.	1907-8.	1908-9.
November	0·25	2·26	1·86	0·07
December	—	0·70	0·62	0·21
January	—	0·05	0·48	0·75
February	0·08	0·33	0·43	0·28

Throughout these four seasons we have in our rotation experiments made use of the Sorghum known as Early Amber Cane, which may be regarded as a fairly typical summer crop. It has been sown at the rate of 5lbs. to 6lbs. of seed to the acre, with about ½cwt. of bonedust, in drills 32in. apart. Throughout the season the ground has been kept loose and free from weeds by repeated horse-hoeings. What meagre results have been secured are shown below.

In 1905–6 Plot 12 was under Amber Cane, and owing to the dryness of the summer was a complete failure.

In 1906–7 Plot 13 was under amber cane, yielding only 9cwts. of green sorghum to the acre: an improvement on the preceding season, but a failure nevertheless to all intents and purposes.

In 1907–8 Plot 12 came again under Amber Cane, and yielded only 5cwts. 26lbs. of green Sorghum to the acre.

In 1908–9 plot 13 was again sown in the summer to Amber Cane; growth was no more satisfactory than in preceding years. The plots concerned in these experiments were now fenced in independently, and we decided therefore to feed down the Sorghum with cattle. Accordingly, from February 15th to 19th, that is to say, for four days, plot 13 carried 10½ young steers and heifers, averaging in weight about 6cwt. each.

Thus, so far as the Permanent Experiment Field is concerned, our attempts at growing Amber Cane over the past four years have failed signally; and, indeed, over the same period of time the oridnary summer farm crops have been with us no more successful. As after all these crops received every attention, we must conclude that the ordinary climatic conditions of the district do not admit of Sorghum and similar crops being grown to any great advantage.

There remains for us now to compare returns from Wheat raised after Sorghum, however ill-grown, with Wheat grown in continuous succession with bare fallow. We summarise below in table VI. what available data we have on the subject.

Table VI.—*Showing Returns from Wheat after Sorghum comparatively with Wheat after Bare Fallow,* 1906–1908.

Wheat after Sorghum.							Wheat after Bare Fallow.						
Years.	Bushels per Acre.	Total Produce per Acre.			Straw to 60lbs. of Grain.	Weight of Bushel of Grain	Years.	Bushels per Acre.	Total Produce per Acre.			Straw to 60lbs. of Grain.	Weight of Bushel of Grain
		tons.	cwts.	lbs.	lbs.	lbs.			tons.	cwts.	lbs.	lbs.	lbs.
1906 .	18·05	2	0	39	190	57	1906..	23·72	2	8	100	171	58½
1907 .	13·12	0	17	22	87	61¾	1907..	20·52	1	8	88	97	62½
1908 .	28·28	2	9	96	138	63¾	1908..	32·78	2	11	26	115	64½
Mean of 3 years	19·82	1	15	90	138	60·8	Mean of 3 years	25·67	2	2	109	128	61·8

Table VI. shows that whether the crop be looked to from the point of view of Grain, or whether from the point of view of Hay (Total Produce), in each of the seasons under consideration marked advantage rested with Wheat after bare fallow, as against Wheat after Sorghum. And, if we average the results of the three seasons, we find that in Grain, Wheat after bare fallow averaged over three years nearly 6bush. to the acre more than Wheat after Sorghum. If we view the crops as Hay crops, the difference, although real, is less striking: thus, over three years, Wheat after bare fallow averaged 5cwts. more Hay or Total Produce to the acre than Wheat after Sorghum. Finally the ratio of straw to grain is shown to be greater after sorghum than after bare fallow; whilst the weight of the bushel of grain is uniformly greater in the case of Wheat after bare fallow, showing an average difference of 1lb. for the three years.

The results recorded of this Fourth Series, if they do nothing else, serve to demonstrate clearly that neither for grain nor for hay does the Wheat crop derive any advantage from being immediately preceded by a summer crop the success of which is always rendered highly problematic by the wonted dryness of our summers.

(*To be continued.*)

Settler's Home on the Murray.

ARSENATE OF LEAD.

By W. L. Summers.

The successful results obtained from the use of arsenate of lead have caused growers to inquire as to cost and method of manufacture. Several growers have used the arsenite of lead formula with good results.

One grower advises that he has prepared this solution and used it for three years without any sign of burning. His practice is as follows:—Boil 3lbs. white arsenic and 6lbs. washing soda slowly for about half an hour in 3galls. of water, stirring frequently. In another vessel dissolve 21lbs. acetate of lead in 6galls. of warm water. When both solutions are quite cold add slowly the acetate solution to the arsenic, stirring well all the time. Three pints of the solution, when so mixed, is diluted to 45galls. when spraying. No lime whatever is used. It will be noted that this grower adds the acetate to the arsenic solution, while Mr. Prescott, of the Victorian Agricultural Department, whose formula was published in this Journal some months back, recommends the reverse. Several other growers say they have followed the same procedure with equally satisfactory results.

Other growers state they find this solution burns their trees, and one advises that while preparing the arsenite of lead as directed he adds limewater when spraying. Eighty gallons of the mixture as made up for use contains the limewater made from 4lbs. of fresh lime. He has used this for several years, and finds it sticks well, gives splendid results, and the small amount of lime gives no trouble in the nozzles. The cost runs out at less than 1s. per 100galls. of spray.

In view of the complaints of burning with the arsenite of lead, its use is not to be recommended unless a little lime is added.

In connection with the preparation of arsenate of lead by the grower, the following extract from a bulletin of the California Experiment Station on arsenical insecticides will be read with interest:—

Home-made Arsenicals.

"There seems to be no good reason why these may not be used in all places where arsenicals are employed. They are easily made, and the resulting compounds have the most definite composition among the arsenicals used; they are the cheapest arsenicals; the lead arsenicals are most insoluble compounds of arsenic and metals, and therefore the least likely to turn to foliage, and they do not require a constantly working agitating machine in the process of spraying—a turn of the machine now and then will be enough to keep them in suspension, and therefore insure an even distribution of the poison over the whole orchard.

To Make Arsenate of Lead.

"The articles used are acetate of lead and arsenate of soda. First-class crystallised lead acetate should contain 58·8 per cent. of available lead oxide. It is readily soluble in cold water in the proportion of 1lb. to 1gall. In hot water it readily dissolves in less quantity, and for its quick solution hot water is always preferable. Arsenate of soda should not contain more than 2 per cent. or 3 per cent. of chlorin. What is known as "68 per cent." arsenate of soda contains about 47·8 per cent. arsenic acid; and only 0·57 per cent. chlorin. This salt is very soluble in hot water, which is preferable for its solution.

"The formula for making 1lb. of lead arsenate, *i.e.*, enough for 100galls. to 150galls. of water, is to dissolve 24ozs. of acetate of lead in 1gall. of water; also, separately, 10ozs. of arsenate of soda in 3qts. of water, both in wooden vessels. The separate solutions are to be poured together into the spray tank filled with water. A white precipitate of lead arsenate ready for spraying immediately forms in the tank; its fine flocculent condition keeps it in suspension for hours, and of all arsenicals it is the most easily kept suspended in water. To prove that the liquid contains lead in excess, which it should, one has only to take out a little and test it with a few drops of potassium bichromate, when there should be a yellow-colored precipitate. Lead arsenate made as directed from the best quality of both lead acetate and soda arsenate has the following composition:—Water, 2·37 per cent.; lead oxide, 73·10 per cent.; arsenic pentoxid, 21·8 per cent.

"In the market there are several kinds of lead arsenate ready for use, sometimes in a dry powder and sometimes a paste mixed with tar or glucose to make it stick to the foliage. One of these in the form of a paste is largely used, and contains about 36 per cent. lead oxide, 12 per cent. arsenic pentoxid, 9 per cent. organic matter (glucose, &c.), and 43 per cent. of water. These do not come up to the standard when compared with the freshly precipitated home-made lead arsenate, for they settle in the tank much quicker, the home-made article remaining suspended in water 14 times as long as paris green."

The materials for making arsenate of lead can be purchased very much cheaper than the ready-made article, and in view of the practically unanimous recommendations of the American experiments stations, there should be no difficulty, where several hundredweight are required, of the grower saving a considerable outlay. Branches of the fruitgrowers' associations should be able to arrange with the local chemists to put up the arsenate of lead for them, at least experimentally.

In addition to the imported arsenate of lead, a local brand has been placed on the market. It is claimed for this that it is much stronger and cheaper than the imported article, that it sticks well, and is not injurious to the foliage. Until it has been carefully tested the department cannot offer any opinion on this brand, but would recommend growers to test it on a small scale.

NOTES ON PANICUM CRUS-GALLI.

By S. McIntosh, Manager Experimental Farm, Murray Bridge.

Amongst the numerous grasses, cereals, and root crops experimented with on the saline area of the local reclaimed swamp lands, no plant has given anything like the satisfactory results obtained from *Panicum crus-galli.* There are two recognised varieties of this valuable fodder, both of which thrive well on swampy or badly drained lands, provided the excess of alkali in the soil is not too great. For a number of years past the lesser variety has been successfully grown on the Islington Sewage Farm, where it is looked upon as a valuable summer fodder on such lands as above described.

The variety grown at Murray Bridge is a much more robust plant, with an upright habit; the crop before coming into head is not unlike a strong growth of skinless barley, or it may be mistaken for millet. The heads are dark-colored and resemble a miniature kaffir corn or durra, but with a rougher appearance in the husk. The plant stools out well, as many as 69 heads and stems averaging over 4ft. high being grown from one seed. From such a plant, if well grown, the return would be about 6ozs., containing over 75,000 seeds.

Mr. T. A. Williams, in " Grasses and Forage Plants of the Dakotas," gives the following description, which is strictly in accordance with local experience :—" Barnyard Grass (*Panicum crus-galli*) is found more or less abundantly throughout the North-West, in fields and waste places. It makes an immense growth on rich, moist soils. All kinds of stock eat it readily, either in the green state or as hay. The hay is coarse, and should be cut before the stems become woody. It is becoming very abundant on waste irrigated lands, where it often reaches a height of from 4ft. to 6ft. At Redfield, Iroquois, Letches, and elsewhere in the James Valley it is one of the most conspicuous plants along ditches and about ponds fed by artesian wells. It seems probable that it could be cultivated to advantage in the artesian basin, and it should be given an extended trial."

We cut the hay for chaff, which both horses and cattle apparently eat with relish. I consider it would make a perfect silage plant.

In 1908 ½lb. of seed was sown on two square chains of land, out of which half a chain was saved for seed. This returned 91lbs. of seed, while the straw averaged over 5ft. in height.

The 1909 experiment included grazing 132 wethers on slightly less than quarter of an acre for four and a half days, and when these were removed a considerable quantity of leaf and stalk was left, in addition to which the second growth provided another fair grazing. From two and a quarter acres over 2,000lbs. of clean seed was harvested, while the growth was variously estimated at from 4 tons to 5 tons of hay to the acre. The seed is easily shaken out, and a very considerable quantity is lost in the handling. A September sowing should provide from two to three cuts or grazings.

The best time for sowing is from September to December. Prepare the land by ploughing or disking well—on swampy lands cultivate as lightly as possible—then broadcast from 7lbs. to 10lbs. of seed per acre, according to the tilth and general condition of the soil. Follow this with the harrows and rollers, and, if possible, thoroughly flood or saturate the land in order to give the plant a good start. The heaviest yields in the past have invariably been from plots deeply flooded after sowing.

A Harvest Field.

POULTRY NOTES.

BY D. F. LAURIE.

INTER-STATE EGG TRADE.

It has been stated that there is a growing demand in the other States, and that there we can find a market at satisfactory prices for all our surplus eggs.

The following table will show the total transfers of eggs from South Australia for the years 1905–6–7–8 :—

1905	2,842,078dozs.,	valued at	£102,932
1906	2,760,731 "	"	£106,264
1907	3,116,142 "	"	£120,211
1908	2,832,355 "	"	£127,500

The quantity exported in 1908 was 9,723dozs. less than in 1905, and 283,787dozs. less than in 1907. The declared value of the eggs transferred, however, shows a satisfactory increase.

The declared value includes packing and packages, and with cartage and wharfage cannot be reckoned at less than 1d. a dozen ; in fact it cannot be done for that now.

The average prices per dozen for the eggs transferred each year are as follows :—1905, 8·69d. ; 1906, 9·23d. ; 1907, 9·25d. ; 1908, 10·8d. ; all f.o.b. The figures show a steady increase in value. Allowing 1d. a dozen for packing and the usual commission of 5 per cent., the following prices are those the producer would receive in Adelaide for all sound eggs sent in by him and paid for :—1905, 7·26d. ; 1906, 7·77d. ; 1907, 7·79d. ; 1908, 9·26d.

The average price received for eggs sent to other States in 1905 was 7·26d. The lowest market quotation was 5¾d., in October and November (four markets). The highest price quoted was 1s. 6½d., in June (four markets). In 1906 the lowest price was 5½d., in November (two markets) ; the highest price was 1s. 5d., in May and June (three markets). In 1907 the lowest price was 6d., in January (four markets) ; the highest price in May, 1s. 5d. (two markets). In 1908 the lowest price was 7d., in January (seven markets) ; and the highest in June, 1s. 7d. (one market).

Again, taking the average prices (less 1d. for packing) into consideration, we find :—1905, average, 7·69d. ; the market was on 45 occasions under this price. 1906, average, 8·23d. ; the market was on 49 occasions under this price. 1907, average, 8·25d. ; the market was on 54 occasions under this price. 1908, average, 9·8d. ; the market was on 52 occasions under this price.

The following table shows the quantities and values of eggs transferred to New South Wales, Victoria, and Western Australia for the years 1905-6-7-8 :—

Year.	New South Wales		Victoria.		West Australia.	
	Dozens.	£	Dozens.	£	Dozens.	£
1905	1,101,478	29,108	113,976	3,645	1,626,058	70,156
1906	934,132	33,611	263,291	8,172	1,554,983	64,237
1907	1,167,000	41,806	482,087	16,268	1,423,278	61,987
1908	1,149,679	49,605	644,320	26,897	1,025,067	50,416

New South Wales has increased her demands and so has Victoria, but there is little doubt that both States experienced considerable shortage due to bad seasons. Although general prosperity and increase in population may mean larger consumption, it must not be forgotten that in both States production is increasing and will go on increasing. Western Australia, which has been in the past our best customer, is now almost on a level with New South Wales. Compared with 1905 there has been a falling off of 601,000dozs. in 1908.

THE ENGLISH MARKET.

The successful issue of the shipments to England in 1906 and 1907 proved that there we have a splendid market; and also that we can land our eggs in perfect condition. It is true that there were a few details which have since been perfected, and the package and packing which were to have been adopted in 1908 leave nothing to be desired.

Our Inter-State markets, notably Western Australia, are shrinking, and another outlet is imperatively required.

We are practically assured of 7d. net at Port Adelaide for eggs shipped to England, and in seasons of scarcity the prices will be higher. Last year it would have been 10d. or 11d. net here. In 1908 the price of eggs in Adelaide from August 14th to December 24th was not over 8½d., and this, less 5 per cent., equals a maximum of 8d. per dozen. Shippers last year would have done excellently.

There can be no possible doubt that the average price in Adelaide would improve several pence per dozen if only half the quantity pickled and cold-stored in this State were sent to England, while the results would be much better if none of our eggs were stored here or in the other States.

FEEDING FOWLS.

An erroneous impression exists in some quarters that the fowls in the laying competitions at the Poultry Station, Roseworthy Agricultural College, are fed on forcing foods. I am, and have always been, a strong opponent to the use of forcing foods. Even where egg-production is the end in view, as in laying competitions, I am opposed to forcing. The Poultry Station is open to inspection on any day except Sunday, and anyone may stay all day and see the birds fed. The accompanying tables will, no doubt, prove of general interest.

Roseworthy Poultry Station.—Laying Competition, 1907-8.

Food Values.

Food, &c.	Weight.	Albuminoids.	Oils, Fats, &c.		Carbo-hydrates.	Salts, Mineral, &c.	Husk, Fibre, &c.	Water.
	lbs.	lbs.	lbs.	× 2·25	lbs.	lbs.	lbs.	lbs.
Wheat	19,860	2,383·2	357·48	804·33	13,921·86	357·48	456·78	2,383·2
Pollard	10,740	1,718·4	429·6	966·6	6,121·8	483·3	483·3	1,503·6
Bran	8,600	1,333·0	344·0	774·0	3,784·0	516·0	1,419·0	1,204·0
Meat meal	1,064	757·56	145·77	327·98	3·19	43·63	—	113·85
Maize	720	75·6	57·6	129·6	478·8	10·8	18·0	79·2
Peas	400	96·0	6·0	13·5	192·0	10·0	40·0	56·0
Grit	2,000	—	—	—	—	2,000·0	—	—
Green food	20,531	753·49	117·3	263·31	1,201·06	320·28	636·46	17,502·68
Total	63,915	7,117·25	1,457·48	3,279·32	25,702·71	3,741·49	3,053·54	22,842·53

450 pullets were fed on the above food for 365 days.
Total number of eggs laid, 80,959; average weight of egg, 2·07ozs.; total weight of eggs laid, 10,474lbs.
Food ratio = 3,279·32 + 25,702·71 ÷ 1,457·48 = 1 to 4·07.

Roseworthy Poultry Station.—Laying Competition, 1908-9.

Food Values.

	lbs.	lbs.	lbs.	× 2·25	lbs.	lbs.	lbs.	lbs.
Wheat	15,000	1,800·0	270·0	607·25	10,515·0	270·0	345·0	1,800·0
Pollard	7,980	1,276·8	319·2	718·2	4,548·6	359·1	359·1	1,117·2
Bran	3,800	589·0	152·0	342·0	1,672·0	228·0	627·0	532·0
Maize	720	75·60	57·6	129·6	478·8	10·8	18·0	79·20
Peas	480	115·20	7·2	16·2	230·4	12·0	48·0	67·20
Meat meal	672	478·47	92·1	207·22	2·0	27·53	—	71·90
Grit	1,120	—	—	—	—	1,120·0	—	—
Green food	15,330	562·52	87·39	196·62	896·81	239·15	475·24	13,068·89
Total	45,102	4,897·59	985·49	2,217·09	18,343·61	2,266·58	1,872·34	16,736·39

336 pullets were fed on the above food for 365 days.
Total number of eggs laid, 63,818; average weight of egg, 2·1ozs.; total weight of eggs laid, 8,376lbs.
Food ratio = 2,217·09 + 18,343·61 ÷ 4,897·59 = 1 to 4·19.

In both tables I have included the grit, and have assumed it as absolutely dry (there is probably some water in it). As regards the green food, each pen of six birds receives on an average 12ozs. of green food daily. This consists of sow thistles, barley, cabbage, kale, and lucerne. I have assigned food values based upon equal parts of kale or cabbage and lucerne. The exact composition of each kind of food used is as follows :—

Food.	Albuminoids.	Fats.	Carbo-hydrates.	Salts and Minerals.	Husk or Fibre.	Water.
Wheat	12·0	1·8	70·1	1·8	2·3	12·0
Pollard	16·0	4·0	57·0	4·5	4·5	14·0
Bran	15·5	4·0	44·0	6·0	16·5	14·0
Meat meal	71·2	13·7	0·3	4·1	0·0	10·7
Maize	10·5	8·0	66·5	1·5	2·5	11·0
Peas	24·0	1·5	48·0	2·5	10·0	14·0
Grit	—	—	—	100·0	—	—
Green food	3·67	0·57	5·85	1·56	3·10	85·25

The proportion of 1 to 5 is generally considered the nearest approach to healthy feeding. That is, the food contains five times as much fat or heat-producing elements as it does of flesh or egg making. Oils and fats are more valuable than the starches, sugars, gums, &c., and in order to estimate their food value it is necessary to multiply the total quantity by 2·25 (2¼). Therefore the ratio is found by dividing the total albuminoids by the fats × 2·25 + the carbo-hydrates.

As will be seen, the ratio works out as 1 to 4·07 in 1907-8, and 1 to 4·19 in 1908-9, proving that the foods given to the fowls contain more albuminoids (or egg-making food) than the conventional formula of 1 in 5. The foods have not been worked out before, but the tabled results, as above, are proof that practical feeding will accord with theoretical teaching. Judging by the results obtained in these competitions it is evident that the food provided is all that is necessary ; the egg yield depends entirely on the birds. Food value tables are for use as a guide, and are not to be slavishly copied. When you know the components of a food you can use your judgment in feeding with it. Some foods are of less actual value than the table would lead one to believe. Quality also varies, and this the feeder takes into account.

ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, June 9th, there being present Messrs. G. R. Laffer (Chairman), J. W. Sandford, T. N. Hardy, A. M. Dawkins, J. Miller, C. J. Valentine, Colonel Rowell, C.B., and Professor Perkins.

Sympathetic reference was made to the loss sustained by the Board and by the State generally by the death of Mr. Molineux, and on the motion of Mr. Sandford it was decided to adjourn for 15 minutes as a token of respect. It was also resolved that the high appreciation of the services of their late colleague and deep sympathy with his family in their sad bereavement should be recorded in the minutes.

The Hon. Minister intimated that he had approved of a conference of representatives from the Advisory Board, the Royal Agricultural Society, the Fruitgrowers' Association, and the Vinegrowers' Association to consider the best means of dealing with the starling pest. It was resolved that the Chairman, Colonel Rowell, and Mr. Dawkins should represent the Advisory Board.

The Chairman, Professor Perkins, and Mr. Dawkins were appointed a committee to make necessary arrangements for trial of stone-gathering machines in August.

The secretary read letter from Chief Veterinary Officer of Victoria on the question of legislation controlling persons practising as veterinary surgeons, and also extracts from the Veterinary Surgeons Act of Victoria. Under the Act no person can take or use the name of veterinary or veterinary surgeon, or use any title or description by means of initials or letters implying qualification as a veterinary, unless he has proved to the satisfaction of the Veterinary Board that he is entitled to use or practise as such. The persons entitled to practise as veterinarians under the Act are those who hold the diploma of M.R.C.V.S., or of any veterinary school or college recognised by the Victorian Veterinary Board, and persons who had been continually practising in Victoria as veterinary surgeons for the seven years immediately preceding the passing of the Act. While the Act did not prevent any person other than a veterinary surgeon from rendering veterinary services, such persons were not entitled to sue for fees or charges for assistance or advice, or for medicines supplied, unless registered by the Veterinary Board. The members of the Advisory Board were unanimously of opinion that the Victorian Act met the needs of the times, and it was resolved that the Hon. Minister be asked to introduce legislation on similar lines to the Victorian Act, as it was considered that if protection were afforded to veterinary surgeons in this way qualified men would be induced to settle in the State. It was also resolved that in the opinion of the Board it would be to the best interests of the stock industry if the Stock Department and the Veterinary Department were under one control.

The Secretary reported that 69 Branches had replied to circular inquiring most suitable date for the Annual Congress. Of these, 44 Branches favored the opening meeting being held on the Monday evening of September Show week, seven were in favor of Tuesday morning for the opening session, six preferred the week before Show, while four favored the present arrangements. Four Branches advocated March Show week, two would have meetings during March and September. It was resolved that the wishes of the majority be followed, and the opening session will take place this year on the Monday evening of Show week.

The Hon. Minister forwarded intimation from the Prime Minister that as the present standard cornsack gave general satisfaction it was not intended to make any alteration.

The following gentlemen were approved as members of the undermentioned Branches :—Messrs. R. Sampson, Johnsburg ; J. Kayser and S. W. Chapman, Cherry Gardens ; T. M. Forbes, Paskeville ; J. Ryan, Beetaloo Valley ; B. McCallum and C. Okley, Morchard ; C. and J. Waldhutter and G. Hone, Belalie North ; T. Bell and W. P. Kavanagh, Port Pirie ; J. Gillick, T. Sullivan, and W. Adams, Cradock ; J. McDonald, D. Fullerton, and R. A. Maxwell, Penola ; R. Kreig, Penong ; D. Edyvean, Kadina ; W. Burton and J. Morris, Meadows ; W. B. Parker, J. Deer, and W, Beaty, Utera Plains ; J. G. Arnold, Mannum ; E. Cooper, E. Fowler, and H. Miller, Yongala Vale ; W. J. Williams, Shannon.

The resolution from Angaston Branch that the Fruit Inspectors should be given extended powers in regard to the treatment of neglected orchards was considered. Mr. Quinn said the position at present was that the Orchard Inspector had to report cases of neglect to the Chief Inspector, who then had to report to the Minister, and the latter's written authority in each individual case was required to give legal effect to any instructions issued to the orchardist. This involved unnecessary delay and greatly interfered with the efficiency of the work. What was required was that the inspectors should possess power, on the finding of a proclaimed insect or disease, to issue at once, in writing or print, such instructions for the eradication of the same as should have been previously authorised in general by the Minister for the eradication of the insect or disease in question. Further, it was desirable to consider whether power to destroy fruit or plants should be conferred on the Chief Inspector in relation to certain diseases. The power to authorise destruction now remained with the Minister, Colonel Rowell said he agreed that the present system involved too much delay, but he would be chary of giving the inspectors too much power, especially where the destruction of trees, &c., was involved. Power to prosecute should not be in the hands of the inspectors. Mr. Dawkins asked whether it would not be possible to give the inspectors power to carry out necessary work at the expense of the occupier when the latter neglected to carry out instructions. Mr. Quinn said this would involve too big a contract altogether. He would not give the inspectors power to destroy trees on their own authority, but in the case of codlin moth, red scale, and similar pests, where there was an approved system of treatment, the inspectors should have power on visiting an orchard infested with such pests to give the occupier written legal instructions as to what he should do. On motion of Mr. Miller it was resolved that Messrs. Laffer, Rowell, and Hardy be a Committee to confer with Mr. Quinn on the subject.

Secretary reported that, in accordance with the constitution of the Board, Colonel Rowell, Messrs. A. M. Dawkins, Geo. Jeffrey, and the President of the Vinegrowers' Association retired on June 30th.

PRODUCE EXPORT NOTES.

EXTRACTS FROM THE ACTING COMMERCIAL AGENT'S REPORT.

LONDON, *April* 30*th*, 1909.

FRUIT.

It will be noted that in some instances the 2½in. apples have made higher prices than the higher grades. The reason for this that the 2½in. grade is the most suitable one for a dessert apple, and will always be the most acceptable to buyers.

The whole consignment of the *Orestes*' pears was too much on the ripe side and coming out of the cold chamber into a summer-like temperature some of the varieties speedily went bad. Some cases had to be thrown away entirely, but we paid the closest attention to the whole of the fruit, so as to minimise the loss as much as possible.

The following remarks on the varieties may be of interest to growers :—

Beurré Bosc.—These were a very nice fruit, but were all too forward, and packed in a too advanced stage of maturity. On the whole this variety is one of the best carrying sorts, and had they been a little more backward high prices would have been secured for nearly all of them.

The Marie Louise variety was too ripe, but the two cases which were in fair condition sold well.

Durodeau.—The bulk of these were all soft and ripe at the nose of the fruit, and soon became discolored on exposure to the atmosphere. They were unknown to buyers, and therefore difficult to sell.

Beurré Diel.—These were in fair condition, the fault being their too far advanced stage, and some trays were entirely soft on arrival. This is a good selling pear here.

Clairgeau.—These were far too ripe. They carried very badly, and require to be packed in a less advanced stage of maturity.

Vicars.—These were in very nice condition, just suitable for the trade.

Glou Morceau.—These were also in very good condition, with the exception of two cases, which appear to have been frosted.

Winter Nelis.—These were in very fair condition.

With the exception of the over-ripe stuff, the results will come out fairly satisfactorily. If the fruit could go into consumption immediately on arrival this shipment would have been excellent, but it must be landed here in a condition which will allow sellers at least 10 days to sell, because at the price they must get retail the turnover is small and the rate of disposal slow. We have had splendid weather here, but the sun has been altogether too bright when it is a question of keeping pears landed fully ripe.

Apples.—The market for Jonathans and Cleos. remain firm, and I expect these varieties will do well for future shipments, but other kinds vary very much, with the advantage, so far as we are concerned, with Dunns.

Tasmanian prices, generally, are below Australian, but they are making fancy prices for a few first-grade Cox's Orange Pippin and Munro's Favorite, and they have realised up to 15s. and 18s. a case this week for odd lots of a few cases each. Our growers should pay attention to these varieties, as they are great favorites here.

LONDON, May 7th, 1909.

Fresh Rabbits.

Unfortunately, after a run of very high prices, the London market for this class of produce has again become very depressed, and I hear that a sale of good-conditioned first grades, ex ship London, was made the other day at 9s. 6d. a case. Another bad feature is that the London Freezing Works are so congested with stocks of meat that it is very difficult to obtain suitable cold storage. These conditions, I am afraid, will again knock all the buoyancy out of the trade in South Australia.

The Admiralty were well satisfied with the first sample they purchased, and have since made additional purchases of South Australians.

Apples.

I want to bring under growers' notice the fact that ex *Orontes* the following special prices were made for one variety of Tasmanians, of course only applying to the very best grade :—

5	cases	Cox Orange	Pippin at	21s.
8	"	"	"	20s.
5	"	"	"	19s.
7	"	"	"	15s. 6d.

Just at the present the market is a little stronger, and importers are using every effort to raise it still further. The rise is to some extent due to the shortage of fruit, because very little of last week's arrivals were brought forward, and the *Orontes* is the only boat to hand so far this week. By Friday, and from then on for a day or two, the *Sarpedon*, *Malwa*, and *Somerset* shipments will be available, and it remains to be proved whether agents can maintain present prices.

Pears.

After clearing the *Orestes*, pears have been scarce and buyers eager ; consequently some good ones ex *Orontes* sold to-day up to 28s. per case for Winter Nelis. It is impossible to quote standard values, because the range is so great, due to kinds and condition on arrival. The high prices will not hold for the *Sarpedon* and *Telamon*, as the quantity coming is altogether too great to find the necessary wholesale buyers at 3d. each pear. There are more buyers, of course, at lower levels, and what they are prepared to give will still make profitable returns to producers. The two Holt boats are too close for two big shipments, and unless the fruit arrives in a condition which will allow us to hold for a week or two, the prices will at once go down.

Honey.

As a proof that the work of the Commercial Agent in introducing South Australian produce to the British consumer is having the full results desired —first in finding markets, and secondly in advertising the State to those wishing to try their fortunes in the colonies—several persons have written to this office asking for information on the beekeeping industry, and I have given them the benefit of any knowledge I had on the subject. I understand that one gentleman is at present on his way out to Adelaide, and there is a possibility of two others following.

THE WHEAT MARKET.

The price of wheat in farmers' lots on trucks at Port Adelaide remained steady at 4s. 11d. per bushel until June 19th, when it suddenly fell to 4s. 9d. Strange to say, there was no corresponding drop in Melbourne and Sydney quotations either on that or any subsequent day, although both these States are, like South Australia, exporters of wheat this season. Towards the end of the month the Port Adelaide price rose 1d. per bushel.

The opinion in Europe is that prices will remain high at least until the European and North American harvests are reaped. Under date of May 28th, *Beerbohm's Evening Corn Trade List* says :—" The market would appear to be striving to get a lower level, but finds it difficult because of the obviously large requirements which still have to be met in this country and in Germany. Under normal circumstances, in fact, it may be said that the United Kingdom needs to import 6,000,000qrs. during the next two months, and Germany 3,000,000qrs., whereas last year in the same period the two countries were satisfied with an importaion of 5,000,000qrs., because there was plenty of wheat in stock to fall back on. To-day, however, both England and Germany are notoriously short of native wheat, whilst our port stocks on May 30th will probably not much exceed 1,000,000qrs., compared with 2,600,000qrs. last year. There must thus, in our opinion, be such a pressing need to buy wheat during the next two or three months that it will continue to be difficult to move prices in a downward direction ; on the contrary, it is not improbable that before the combined requirements of England and Germany are satisfied even higher prices may have to be paid."

One cause of the high prices now ruling is the comparative shortage from Argentina. In 1907-8 that country sent to Europe 16,300,000qrs. of wheat, and towards the end of last year some authorities put her probable export at 14,000,000qrs. Recent advices from Buenos Aires place the total export for 1908-9 at no more than 11,500,000qrs.—or 2,500,000qrs. less than expected.

At the end of May the outlook in Europe was only fair. In Argentina sowing operations had been seriously delayed and restricted owing to persistent drought. In Canada and the northern United States the winter wheat was improving, but there was little doubt that the yield will be less than last year.

Date.		LONDON PRICE (Previous Day). Per Bushel.	PORT ADELAIDE. Per Bushel.	MELBOURNE. Per Bushel.	SYDNEY. Per Bushel.
June	4	Liverpool market dull	4/11	4/11½ to 5/–	5/4½ (s.)
	5	Firm; Liverpool steady but quiet	4/11	4/11½ to 5/–	5/4½
	7	—	Holiday	Holiday	Holiday
	8	Steady, but quiet	4/11	4/11½ to 5/0½	5/4 to 5/4½ (s.)
	9	February 5/6½; market very strong	4/11	4/11½ to 5/0½	—
	10	January 5/6⅜; firm	4/11	5/– to 5/0½	—
	11	January 5/7⅛; February 5/6¾	4/11	5/– to 5/0½	5/4½ (s.)
	12	5/6⅜; Liverpool market dull	4/11	5/–	5/4½
	14	—	4/11	5/–	—
	15	Steady: Liverpool quiet; 5/6¼ (s.)	4/11	4/11½ to 5/–	5/4½
	16	Liverpool market steady at full prices	4/11	5/– to 5/0½	5/4 (b.), 5/4½ (s.)
	17	5/7½ off coast	4/11	5/–	5/4¼ to 5/4½
	18	January 5/7⅛; March (sailer) 5/6¼; quiet	4/11	5/–: 5/0½ (s.)	5/4 (b.), (s.) 5/4½
	19	5/7½ (s.) off coast; 5/6 (s.) afloat	4/9	5/– to 5/0½	—
	21	—	4/9	4/11½ to 5/–	5/3½ to 5/4½ (nom.)
	22	Quiet; 5/6½ off coast	4/9	5/– to 5/0½	—
	23	Firmer; 5/6¾ off coast	4/9	5/– to 5/0½	5/4½
	24	Strong: May (sailer) 5/6: 5/7 off coast	4/9	5/–	5/4 to 5/4½ (nom.)
	25	Firm; March (sailer) 5/6⅜	4/9	5/– to 5/0½	—
	26	5/7 off coast; Liverpool firm	4/9	5/– to 5/0½	—
	28	—	4/9	5/- to 5/0½	—
	29	Very firm; 5/8¼ off coast	4/10	5/- ex store	—
	30	5/8 off coast; firm but inactive	4/10	5/- to 5/0½	—
July	1	Liverpool April (sailer) 5/7¼	4/10	5/- ex store	5/4½ (s.)
	2	Firm, but not active	4/10	5/- to 5/1	5/4
	3	Steady, but quiet	4/10	—	—

Steamer Freights.—Port Adelaide to London, 20/– per ton (6⅖d. per bush.). Port Adelaide to South Africa, 20/– to 22/6 per ton (6⅖d. to 7⅕d. per bush.). Port Adelaide to Sydney 10/6 per ton (3¼d. per bush.). Port Adelaide to Melbourne, 8/– per ton (2½d. per bush.).

RAINFALL TABLE.

The following table shows the rainfall for June, 1909, at the undermentioned stations, also the average total rainfall for the first six months in the year, and the total for the six months of 1909 and 1908 respectively:—

Station.	For June, 1909.	Av'ge. to end June.	To end June, 1909.	To end June, 1908.	Station.	For June, 1909.	Av'ge. to end June.	To end June, 1909.	To end June, 1908.
Adelaide	2·24	10·11	11·03	13·42	Hamley Brdg.	1·55	8·02	7·18	7·81
Hawker	5·21	5·83	8·83	5·02	Kapunda....	1·92	9·11	10·81	8·05
Cradock.....	4·56	5·42	7·75	4·18	Freeling	1·34	8·39	7·87	8·60
Wilson......	4·39	5·83	7·96	5·58	Stockwell ...	3·14	9·32	9·80	8·95
Gordon	4·23	8·05	8·12	5·78	Nuriootpa ..	2·50	9·80	9·67	9·64
Quorn	4·24	6·37	8·87	6·18	Angaston ...	2·37	9·82	11·88	10·07
Pt. Augusta .	3·06	4·85	7·38	5·90	Tanunda ...	2·70	10·26	13·05	9·64
Pt. Germein .	2·76	6·27	7·95	8·65	Lyndoch ...	2·53	10·41	11·45	11·21
Port Pirie ...	2·58	6·47	6·61	7·30	Mallala	1·55	8·24	7·37	9·40
Crystal Brook	2·62	7·17	7·92	9·85	Roseworthy .	1·82	8·33	8·55	8·44
Pt. Broughton	2·14	7·02	7·36	6·98	Gawler......	1·68	9·15	10·47	9·67
Bute	2·13	7·27	7·20	8·92	Smithfield ..	1·51	8·26	8·75	10·26
Hammond ..	4·11	5·22	8·47	8·97	Two Wells...	1·27	8·37	6·47	8·08
Bruce	3·53	4·30	6·76	11·97	Virginia.....	1·59	8·64	8·48	9·86
Wilmington .	5·16	8·24	11·47	10·10	Salisbury....	1·35	9·03	9·19	10·07
Melrose	5·81	10·84	16·22	18·90	Teatree Gully	3·13	13·91	17·40	20·32
Booleroo Cntr.	3·05	7·32	9·14	8·14	Magill	2·95	12·77	15·43	17·15
Wirrabara...	4·63	8·67	12·71	7·33	Mitcham ...	3·21	11·60	12·72	13·99
Appila	2·74	6·86	8·21	8·45	Crafers......	8·27	21·79	29·73	28·09
Laura	4·59	7·99	12·70	12·13	Clarendon ..	5·03	16·13	19·64	17·58
Caltowie	3·35	7·63	8·62	9·86	Morphett Vale	2·59	11·45	12·66	10·90
Jamestown .	3·60	7·59	8·39	7·86	Noarlunga ..	2·80	9·84	10·81	11·83
Gladstone ..	3·02	7·06	7·94	9·61	Willunga ...	3·43	12·22	15·04	12·50
Georgetown .	3·48	8·50	8·66	8·80	Aldinga	2·28	10·11	10·97	11·57
Narridy	3·30	7·95	7·19	7·98	Normanville.	2·01	10·00	10·95	10·33
Redhill	3·19	7·77	8·37	10·29	Yankalilla...	2·10	11·51	10·95	12·13
Koolunga ...	3·56	7·31	7·82	9·09	Eudunda....	2·62	7·77	7·77	7·14
Carrieton ...	4·52	5·52	8·47	5·93	Sutherlands .	2·60	—	3·48	—
Eurelia	4·26	5·99	7·91	8·49	Truro.......	2·73	8·74	10·14	8·59
Johnsburg ..	3·76	4·41	7·26	3·85	Palmer	1·82	—	7·69	7·30
Orroroo	4·72	6·59	8·27	6·71	Mt. Pleasant.	4·01	12·47	13·92	13·44
Black Rock..	4·53	5·80	8·56	6·35	Blumberg ...	3·74	13·93	15·76	16·35
Petersburg ..	3·27	6·04	7·38	6·26	Gumeracha .	5·38	15·42	21·52	17·15
Yongala	3·67	6·23	7·28	5·57	Lobethal ...	5·38	16·46	21·45	17·53
Terowie	3·17	5·95	6·97	6·18	Woodside ...	4·74	14·26	19·06	17·22
Yarcowie....	3·83	6·18	7·64	5·84	Hahndorf ...	5·15	16·03	18·68	17·80
Hallett	2·99	7·25	7·22	7·51	Nairne	4·35	13·27	17·62	13·92
Mt. Bryan ..	2·73	7·01	6·68	4·63	Mt. Barker ..	4·47	13·91	18·30	13·77
Burra	3·06	8·10	9·15	7·83	Echunga ...	6·75	15·32	21·76	15·70
Snowtown...	2·62	7·38	8·45	10·89	Macclesfield .	4·89	13·40	19·67	15·53
Brinkworth..	3·69	7·05	7·44	9·67	Meadows ...	5·66	16·34	22·24	17·59
Blyth.......	3·35	7·77	9·09	9·36	Strathalbyn .	2·52	8·76	12·39	10·13
Clare	4·16	11·11	12·40	12·45	Callington ..	1·46	7·54	7·76	7·51
Mintaro Cntrl.	3·41	9·93	11·28	10·33	Langhorne's B	1·04	7·06	7·26	6·87
Watervale...	3·74	12·72	13·75	14·32	Milang	0·86	8·24	7·53	9·74
Auburn	3·85	11·08	14·09	12·35	Wallaroo ...	1·91	7·12	7·33	9·21
Manoora	2·57	8·34	7·59	8·51	Kadina	2·62	7·94	8·32	8·82
Hoyleton....	2·40	8·80	7·53	8·96	Moonta	2·52	7·81	9·10	8·99
Balaklava ..	1·93	7·81	6·74	9·02	Green's Plains	2·09	7·53	8·44	11·35
Pt. Wakefield	1·48	6·82	4·95	9·18	Maitland ...	2·78	9·87	9·44	11·54
Saddleworth .	2·53	9·48	7·98	9·06	Ardrossan ..	1·40	6·87	5·80	8·25
Marrabel ...	2·35	8·95	9·48	8·56	Pt. Victoria..	1·89	7·68	6·28	9·77
Riverton ...	2·18	9·64	10·09	9·01	Curramulka .	2·42	8·82	8·45	8·39
Tarlee	1·83	8·31	8·14	7·34	Minlaton ...	1·82	8·48	7·03	8·17
Stockport ...	1·08	7·70	6·86	6·62	Stansbury ..	1·51	8·07	8·08	9·18

RAINFALL TABLE—*continued.*

Station.	For June, 1909.	Av'ge. to end June.	To end June, 1909.	To end June, 1908.	Station.	For June, 1909.	Av'ge. to end June.	To end June, 1909.	To end June, 1908.
Warooka ...	1·86	8·23	6·82	9·14	Bordertown .	2·82	8·96	9·68	8·37
Yorketown .	1·78	8·34	6·77	7·69	Wolseley ...	2·82	8·00	9·62	8·06
Edithburgh..	1·09	8·07	7·69	8·14	Frances	3·13	8·67	9·92	8·06
Fowler's Bay.	1·39	6·55	5·27	7·85	Naracoorte .	4·72	10·05	13·09	10·21
Streaky Bay.	2·88	7·70	7·07	9·86	Lucindale ...	4·83	10·28	13·66	11·55
Pt. Elliston .	2·46	8·00	7·52	11·65	Penola	4·92	11·92	14·16	12·02
Pt. Lincoln .	3·14	9·50	8·77	9·05	Millicent	5·47	13·77	19·74	15·07
Cowell	1·87	5·86	3·96	8·84	Mt. Gambier .	5·56	14·18	21·05	14·32
Queenscliffe .	2·47	8·92	8·22	9·01	Wellington ..	1·31	7·28	8·09	7·37
Port Elliot ..	1·08	9·89	7·18	8·49	Murray Bridge	1·40	6·75	8·56	6·52
Goolwa	1·56	8·47	10·30	8·52	Mannum ...	1·06	5·83	6·80	5·16
Meningie....	1·71	8·92	10·19	8·81	Morgan	1·82	4·35	3·92	3·23
Kingston....	4·73	11·70	15·47	17·54	O'rland Corner	2·09	5·44	4·74	4·14
Robe	4·81	1·45	15·26	13·46	Renmark....	1·96	4·89	5·62	3·03
Beachport...	5·99	13·05	20·44	12·59	Lameroo ...	2·03	—	7·77	—
Coonalpyn ..	1·83	7·91	10·96	8·37					

DAIRY AND FARM PRODUCE MARKETS.

Messrs. A. W. Sandford & Co. report, on July 1st, 1909 :—

WEATHER.—Climatic conditions throughout June were most favorable to those engaged in farming, as also for the grazing country. Magnificent and widespread rains were experienced, feed is coming along nicely, and all points towards an early season—at least, in the dairying industry.

COMMERCE.—General trade continued satisfactory, the aggregate turnover showing a moderate expansion on the figures for the same month of last year.

FODDERS.—In chaff a considerable tonnage was disposed of to Sydney, but orders at moment have eased off—this owing to the improved prospects of feed in the eastern States. Business locally was an active one. Mill Offal.—Quotations further weakened, the result of the larger inter-State offerings. Feeding Grains.—Oats had good seasonable demand.

POTATOES AND ONIONS.—The turnover in potatoes was fairly heavy, and as Gambier stocks are becoming more limited holders there are not now too anxious to quit, especially in face of the strong demand and the decidedly firmer tone in values. Therefore, to fill orders, parcels are being brought over mostly from the Ballarat district. Onions.—Prices keep well up. A few lots of locals are still coming along, but the market is practically supplied with Gambiers and Victorians.

DAIRY PRODUCE.—Following on such magnificent rains, it is not surprising to find a rapid increase in quantities of produce forward. In the latter days of June a betterment in supplies of butters was experienced, and to such an extent that it is pleasing to find this State on the eve of being once more self-supplying; and, as consumers give preference to freshly-churned butters, traders at the auction sales attended in full numbers and bid freely for all grades of fresh prints. As a result there has been no reduction in values; indeed, if anything, a slight firming. There are still a few parcels of Victorian and New South Wales lines of bulk offering, but these only find a meagre sale, owing to the improvement in quantities of the local product. Eggs.—The run-down in rates was checked, the heavy rains considerably interfering with deliveries, and, coupled with a better South

Australian trade, also a Commonwealth demand, a recovery of several pence was effected. It is, however, generally reckoned that with milder weather the seasonable increase will soon be apparent. Cheese.—The absence of shipping orders at the commencement of June caused rates to ease somewhat; but, with Western Australia again coming on this market, quotations have steadied. Bacon.—As usual throughout the winter months, business is quiet—especially in the direction of exports; but, locally, fair sales were effected of factory-cured sides and middles. The call for hams was decidedly slow. Honey.—As the season advances prime qualities are becoming scarcer, and consequently rates are firm. On the other hand, for medium or secondary grades there has only been a limited inquiry. Almonds.—Buyers for export operate freely, and keep the rooms cleared of stocks.

Carcass Meat.—A considerable number of porkers and vealers were forwarded for each of the Friday markets, and, as high prices have ruled in other lines of stock, bright shop porkers, weighing from 60lbs. to 90lbs., secured the top figures ruling, whilst prime baconers weighing from 115lbs. to 135lbs. found a good market. Heavy choppers quitted at full rates, according to quality. In veal a brisk demand was experienced for prime farm-fed with pelt on, but without head, feet, and pluck; medium or poor sorts were rather difficult to dispose of.

Dressed Poultry.—Throughout the winter months all well-conditioned birds, nicely dressed, meet with active competition.

Live Poultry.—Buyers gave most attention to coops of choice table sorts, and all such readily sold at satisfactory prices. On the other hand, poorly-fed and under-sized birds required a special effort to place.

MARKET QUOTATIONS ON JULY 1.

Flour.—City brands, £11 15s.; country, £11 10s. per ton of 2,000lbs.

Bran.—11½d.; Pollard, 1s. 1d. per bushel of 20lbs.

Oats.—Local Algerian, nominally 2s. to 2s. 1d. per bushel of 40lbs.

Barley.—Cape, for feed, 2s. 4d. per bushel of 50lbs.

Chaff.—£3 15s. to £3 17s. 6d. f.o.b. Port Adelaide per ton of 2,240lbs.

Potatoes.—Gambiers, £4 10s. to £4 15s. per ton of 2,240lbs.

Onions.—Locals, £7 10s. to £8; Gambiers, £7 10s. to £8 per ton of 2,240lbs.

Butter.—Factory and creamery, fresh in prints, 1s. 3d. to 1s. 4½d.; choice separator and fine dairies, 1s. 2d. to 1s. 3d. per lb.; medium creamery and fair dairies, 1s. to 1s. 1d.; stores and collectors, 10d. to 1s. for medium to nice bright lots.

Cheese.—Factory makes, 7¼d. to 8¼d. per lb. for large to loaf.

Bacon.—Factory-cured sides, 8d. to 8½d.; middles, 9d. per lb.

Hams.—Factory, 9d. to 9½d.; country hams, 8½d. to 9½d. per lb.

Eggs.—Loose, 1s. 5d. per dozen.

Lard.—Skins, 7½d.; tins or bulk cases, 7d. per lb.

Honey.—Prime clear extracted, 2¾d. per lb.; other sorts dragging at 1½d. Beeswax, 1s. 1d. per lb.

Almonds.—Soft shells, Brandis, 6¼d.; mixed soft shells, 5½d.; kernels, 1s. 0½d. per lb.

Carcass Meat.—Nice baconers and prime shop porkers, 5¼d. to 6d. per lb.; heavy weight choppers, from 3½d. to 4½d.; good quality vealers, 2½d. to 3½d.; medium sorts, down to 2d.

Dressed Poultry.—Turkeys, 8d. to 9d.; fowls, 5½d. to 6½d. per lb.

Live Poultry.—Good table roosters, 2s. 3d. to 2s. 8d. each; light cockerels, 1s. 3d. to 2s.; hens, 1s. to 1s. 5d.; ducks, 2s. to 3s.; geese, 3s. 3d. to 4s. 3d.; pigeons, 5d.; turkeys, 5¼d. to 8d. per lb. live weight, for medium to prime table birds.

AGRICULTURAL BUREAU REPORTS.

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Arden Vale & Wyacca	*	—	—
Arthurton	*	—	—
Bagster	*	—	—
Balaklava	*	—	—
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Belalie North	1039	31	—
Bowhill	*	—	—
Brinkworth	†	13	10
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* No report received during the month of June.
† Only formal business transacted at the last meeting.

REPORTS OF MEETINGS.

Edited by W. L. Summers.

UPPER-NORTH DISTRICT.

(PETERSBURG AND NORTHWARD.)

Amyton, June 8.

(Average annual rainfall, 11½in.)

Present—Messrs. O'Donoghue (chair), Gum, Griffin, T. and P. Ward, Brown, Quirke, Crisp, Stokes, Thomas (Hon. Sec.), and two visitors.

Field Trial.—Two delegates were appointed to confer with other branches and arrange details for a field trial of implements at an early date.

Mixed Farming.—Mr. R. Brown read a paper on this subject to the following effect:—In the dry northern districts with an uncertain rainfall, it was essential to have some source of income in addition to the wheat crop. In this district a farm of a thousand acres could be made to pay well. He would cultivate 250 acres each year, principally fallow. This should be planted with three varieties of wheat; for preference, Federation, Viking, and Purple Straw, in this district. The last named variety was specially valuable as a hay wheat. Stock would eat cocky chaff from this variety when they would not touch other kinds. On a farm of this size he would keep 200 ewes and 40 wethers—the latter to provide mutton for the farm. It would pay every farmer to keep sufficient sheep to provide mutton. From the 200 ewes there should be 160 lambs, worth, say, 9s. per head, and the wool should realise a further sum of £40, making a total of £112 for lambs and wool. In this district dairying was an important matter, and worthy of consideration. The members of the farmer's family could be profitably employed in the various branches of this work, while it was doubtful if it would pay as well as sheep if hired labor were used. By careful selection it was possible to obtain a good milking herd. He favored for this district Hereford or Shorthorn cattle. The Jersey cattle could not, in his opinion, hold their own in this locality against the breeds named. Judicious breeding of horses on the farm would pay well. Good mares should be used, and only first class sires. Every farmer should breed a few foals to take the place of old and worn-out animals. A good discussion followed, some members being of opinion that Mr. Brown's outlook on dairying was not as bright as it should be. They considered that quite double as much money could be secured from grazing milch cows as could be obtained from keeping sheep, taking Mr. Brown's estimate of the latter as a basis for comparison.

Cradock, May 29.

(Average annual rainfall, 10½in.)

Present.—Messrs. Lindo (chair), Jagoe, Solly, McAuley, Clarke, Marsh, Symons, Glasson, Gillick, Adams, Sullivan, Richards (Hon. Sec.), and three visitors.

Phosphates for Stock.—Mr. Richards read extracts from *Western Mail* on the necessity for supplying phosphates directly or indirectly to cattle and other stock. The writer pointed out that as most Australian soils were more or less deficient in phosphates it stood to reason that the herbage would also be deficient. Pure bones consist of over one-half their weight of phosphate of lime; milk also contains phosphate of lime, so that it is evident it the soil is lacking in phosphates the animals must suffer. The application of phosphates in whatever form most suited to the particular soil, and giving pure ground bonemeal to stock were recommended for cripples and other complaints brought about by bone-starvation.

"Paddy Melon."—Mr. Lindo called attention to reports of alleged poisoning by this plant. Several members gave instances of stock doing well on this plant. The chairman had fed a cow for some time almost exclusively on "paddy melon," and she did well on it. Another member said he had 4,000 sheep in a paddock in which there was nothing but paddy melon, and they had done well there. Horses and sheep feeding on this melon often went without water in the summer as long as two weeks, and the plant, instead of being a bane to stockowners, had for many years been a blessing in this district. [Is this the large melon or the small, prickly-fruited variety? It is the latter that is usually referred to under the name of "paddy melon."—Ed.]

Abnormal Egg.—Mr. McAuley tabled a complete egg about an inch in length which he had found within a hen's egg.

Dawson, June 5.

(Average annual rainfall, 10½in.)

Present—Messrs. Renton (chair), Myers, E. and S. Smart, Davies, Baker, Warner, Nottle, Jas., W. A., and John Wilson, Quinn, Smith, Hughes, Burden, and Hodges (Hon. Sec.).

Bacon-curing.—A paper on this subject, written by Mr. H. Richards, formed the chief interest of the meeting. It read as follows :—" A pig at about six or seven months old should weigh about 120lbs. and is the best baconer. I have never found big fat pigs weighing, say, 200lbs., profitable, as they are too coarse for the trade ; nice light handy weights are always the best. For breed it would be hard to beat the Birkshire. In scalding a young pig, say 100lbs. or under, two parts boiling water and one part cold will ensure a good scald, and for a pig 120lbs. or more, three parts boiling water and one part cold. I have cured bacon only during the winter months in the following manner. After killing, let the pig hang over night and cure the next day. If the intention is to roll the bacon, saw the pig into two equal sides and remove the ribs, shoulder blade, and ham bones. If the bacon is not to be rolled, and the pig should weigh over 100lbs., remove the ribs (which can be used fresh or salted), cut off the ham (which should be round), and cut off the shoulders straight across. If the pig is a large one, say 150lbs., remove the shoulder blade, as it is somewhat difficult to cure. Salting—For a pig 120lbs., use about 8lbs. or 10lbs. salt, 2½ozs. saltpetre, 1½lbs. sugar, 2ozs. ground allspice. Mix these well and thoroughly rub into the meat. I use a trough made of 2in. deal 18in. wide at bottom, 2ft. wide at top, 3ft. 3in. long, and 1ft. 10in. deep, inside measurement ; this I find excellent for long sides. Sprinkle a fair quantity of the salt mixture in the bottom of the trough and place the sides in skin downward. Seven days after placing in trough remove sides and sprinkle a little of the salt mixture over them and replace in trough, but be careful to reverse the position by placing the side that was at first on top now at the bottom of the trough and the bottom one at the top. Repeat this process on the fourteenth day, and at the end of third week remove from the trough. In a pan of water wash away all surplus salt from the sides and hang up to dry for a day. I am a believer in dry salting, but always allow the brine that accumulates in the trough to remain there until the bacon is cured. A day or two after the bacon is taken from the trough is the best time for rolling. I regard the rolling of bacon as anything but a success unless it is done thoroughly tight and solid. Only the best cord should be used. The smoking of bacon is most important. There is no necessity for the average farmer to build an elaborate smokehouse. A large drapery case about 3ft. 6in. square will answer the purpose very well, using the boards from the cover and bottom to make the sides say 5ft. high. This can be easily done by using 2in. by 3in. deal battens 5ft. long, one for each corner, and nail securely. Never place the fire for smoking underneath the bacon, but dig a trench about 6in. deep 9in. wide running from under the smokehouse to about 6ft. back. Cover this trench and place a fire at the far end of it. On account of the variation of the wind, it has sometimes been necessary to have two such trenches, one to the north and the other to the south of the smokehouse, the fire being put in the end at which it was most effective. In smoking, damp wood chips from the wood heap answer very well. I usually leave the bacon in the smokehouse for about three days. The smokehouse should not be covered too closely, as a draught is necessary for effective smoking." A slight discussion followed, in which members were agreed that little could be added to the excellent paper.

Stoppage.—Mr. Smith reported a phenomenal case of bowel stoppage in a horse. The trouble lasted for 10 days, and the animal was eventually cured by the administering of ½lb. carb. soda and ½lb. cream of tartar.

Mount Remarkable, June 3.

(Average annual rainfall, 21in.)

Present—Messrs. Yates (chair), Bauer, Casley, McIntosh, and O'Connell (Acting Hon. Sec.).

Statistical Returns.—Mr. Bauer considered that all farmers should give a most careful return to the officers collecting statistics.

Breeding, Rearing, and Feeding of Animals.—Mr. O'Connell read a paper on this subject to the following effect :—" The best animals that the farmer could afford should be procured to commence breeding operations. It was better by far to rear two or three good animals than a greater number of weeds. Having established a strain, the next thing was to keep it up to establish a distinct type. The most successful breeders both in England and Australia had resorted to inbreeding. This practice was good if conducted by a skilled breeder, but very risky and easily mismanaged by an amateur. In his opinion the sire, if a perfect animal, might be bred to his daughters, granddaughters, and so on, so long as he remained fertile; and if the original dam were of good quality the stock would gradually improve in quality, stamina, and strength. Practically the whole of the pure-bred stock of England was produced by resorting to a severe system of inbreeding. Take show poultry, for instance. One of the most successful exhibitors in Australia commenced with two hens and a rooster—just fair average birds—and during the whole of his career he never introduced any new blood into his yards. If he had a fancy hen which he wanted to reproduce he mated her with her own grandson, and a fancy rooster he reproduced by mating with his granddaughter, or even his great granddaughter, if she were available. Most of our successful sheepbreeders started on a small flock 40 or 50 years ago, and upon no consideration would they allow any stranger, male or female, into their flocks. Both the Booth and Bates strains of Shorthorns were raised by inbreeding. It had been proved beyond any doubt that animals inbred on right lines were more fertile, stronger, more easily reared, truer to type than other animals. Amateur breeders steered clear of inbreeding, and very wise they were in doing so, as they very seldom had the material to build upon. It might seem surprising that breeders of dogs and thoroughbred horses looked upon animals by the same sire but from unrelated dams as being of no relation. If they were from the same dam but by different sires, then and then only were they half-brothers or sisters, as the case might be. It was a true saying that 'Half the breeding goes in at the mouth.' It was of no use to breed good animals and then starve them. They should be kept growing. If an animal was checked or stunted while young it would never be the same afterwards. In South Australia overstocking seemed to be the general rule. The farmers seemed to like a lot of stock, whether they had feed or no. Then when the pinch came they had heavy losses, and often blamed everybody but themselves. Overstocked paddocks never seemed to grow any feed, and the grass seldom went to seed, consequently feed grew less and less. The paddocks were mostly too large. If they were smaller, then one could be saved and allowed to go to seed, and when the rains came the old dry grass would shelter the young, and very soon that paddock would be worth many times its size in ordinary grass land. For young stock good clean straw cut with the binder immediately after the harvester was good, and if a little salt were thrown on it when being stacked it would be quite equal to, if not better than, some hay. At all times animals both old and young should be as comfortable as circumstances would permit. Unfortunately many let them take 'pot luck.' They did well when feed was plentiful, and practically starved when it was not."

Morchard, May 29.

(Average annual rainfall, 11½in.)

Present—Messrs. Scriven (chair), Toop, Loftes, Tilbrook, Kitto, Kirkland, Kupke, Reichstein, McCallum, and McDougall (Hon. Sec.).

Harrowing.—Mr. H. Toop introduced this subject in a paper to the following effect:—Throughout that district it would amply pay every farmer to harrow after drilling. Among the many benefits resulting from this practice was the even covering of the seed, which might not otherwise be achieved if the soil were at all wet or patchy. Where ground was apt to wash side hills, the harrow going over it, crossways, would level it off and very much reduce the quantity of water running off. It was not always necessary for the harrows to immediately follow the drill, but, on the contrary, frequently much better to harrow after rain. Wheat sown directly after a heavy fall of rain did not usually do so well as that sown a few days later. For this reason the harrows should be kept working after such rain until the ground was in good order for drilling. Sometimes a crop was benefited by harrowing after the plant was up. If the ground had set hard, making it difficult for the young plant to get through, harrowing would, as a rule, loosen the surface without damaging the crop. Yet another good result of harrowing was the levelling of the land, making it much smoother for the work of the implements at harvest time. Several members commented favorably upon the paper, and considered it contained much advice well worthy of being put into practice.

Quorn, June 5.

(Average annual rainfall, 13½in.)

Present—Messrs. Thompson (chair), Noll, Cook, Twopenny, McColl, Brewster, Schulze, and Patten (Hon. Sec.).

Annual Report.—The Hon. Secretary's report showed that nine meetings had been held during the year with an average attendance of eight members. Papers had been read on Adulteration of Chaff, Weighing Wheat in Bulk at Railway Stations, Water Conservation, Destruction of Rabbits, Machine *v.* Hand Shearing, Working Fallow Land, Travels in New South Wales The Wheat Commission had paid a visit to the district and had noted the extent to which the weight of the bushel of wheat as shown by the small measures depended upon the person making the test. Wheat the agent declared went 59lbs. to the bushel was shown to go 63lbs. The meetings of the Branch had, on the whole, been very instructive.

Tailing Lambs by Searing.—Mr. Noll read a paper on this subject. He had adopted the practice of searing off the lamb's tail, and found it a great improvement on the old method of cutting. The object of searing was to prevent as far as possible the loss of blood and consequent check on their growth. When the tails were cut off there was great loss of blood; he had seen them bleeding at night when tailed in the morning. With searing irons there was practically no loss of blood. The operation was performed on a bench with a hollow for the back of the lamb. The tail projected over the end over a sharp piece of iron with a half circle cut out. To prevent the heat from the irons scorching the lambs, a piece of sheet iron with a similar cut to go over the tail is fixed on the tail. The lamb is placed on the table with the tail lying in the circular cut referred to; the sheet iron protection is closed down, the tail gripped with the left hand, and the searing iron applied in the right hand. The hot iron is pressed down on the tail against the sharp edge of the iron. The searing irons were made of plate steel ⅜in. x 2½in. x 5in., with an iron handle attached. The edge is made sharp. This method was cleaner, safer, and in every way better than cutting. With his two sons to catch the lambs he could operate on several hundred in a few hours. Members thought that there would be considerably less check on the lambs from searing than cutting, and that it was worth adopting on this account alone.

Harrowing Growing Crops.—Some discussion on this subject took place. Mr. McColl said the crop should be harrowed before it got too forward, or the weeds would get too strong a hold for the harrows to pull out.

Wilmington, June 5.

(Average annual rainfall, 17½in.)

Present—Messrs. Broadbent (chair), Payne, George, G., J., and W. Schuppan, W. and S. Robertson, Zimmerman, Hoskins, McGhee, Slee, Heard, Jericho (Hon. Sec.), and one visitor.

Disc Implements.—Mr. Hoskins read a paper pointing out the advantages of these implements. He considered that in a few years' time they would replace practically all the ordinary implements. Members agreed that where the land was covered with stinkwort and hogweed the disc implements were preferable to the ordinary stump-jump implements.

Wilmington, June 24.

(Average annual rainfall, 17½in.)

Present—Messrs. Broadbent (chair), Payne, Hoskins, W. and S. Roberston, J. and G. Schuppan, D. and S. George, Zimmerman, Farrell, Stephens, Crawford, McGhee, and Jericho (Hon. Sec.).

Farming.—Mr. Zimmerman read a paper on "Farming in this District," as follows:—"The quality and working of the soil played a great part in realising a good return. He believed in breaking up the ground into fallow early, say about the first week in July, and ploughing to a depth of about 3½in. At that time most of the weeds were up. If any oats or other weeds should make their appearance later he would then use the scarifier and root up the ground very deeply and leave it very rough. This would give a chance to work it again, because the more the ground was worked shallow and kept harrowed after every rain the firmer it became, and it was difficult to do anything with it at seeding time. First-grade super. at the rate of 40lbs. per acre was quite sufficient, and 1bush. of clean seed wheat of fair quality for early sowing on fallow ground. He preferred late wheat for early sowing, say Silver King or Dart's Imperial, and later, say Marshall's No. 3 or Yandilla King. For the later sowing he would add 10lbs. more super. and sow the same quantity of wheat as for the early seeding. For still later sowing he would put on about 80lbs. of super. and a peck more wheat. He set the drill at a fair depth, from 1½in. to 2in. deep, especially in the beginning of the season. The ground should be harrowed after the drill, otherwise the drill marks ran and caked together after a heavy rain, and very often the wheat was not able to get through the hard crust that had formed in a spell of dry weather. If sowing later on in the season, when the ground had a good soaking he liked to drill as shallow as possible, and then harrow after some time, to give the soil plenty of air. The seed would then come up much more quickly. He had never been troubled with smut or bunt, but was particularly careful to select seed free from that disease. He found that the bluestone pickle destroyed a great percentage of the seed, and the wheat did not come up nearly so soon. He was in favor of rolling all the crop, and for long feeding he cut it with the binder directly the blossom was off the ear, but for chaff he preferred a fair grain, as there was more strength in it, and it would not scour the horses like the former. The wheat should be harvested as soon as there was some ripe enough to strip, and the different varieties should be dealt with in rotation. It was always wise to follow close with the cleaning up, to prevent loss through wet weather or fire."

Wirrabara, June 5.

(Average rainfall, 30in.).

PRESENT.—Messrs. P. Lawson (chair), Lomman, W. and E. J. Stevens, F. and R. Passow, Woodlands, Hunt, P. and A. Hoskins, C. and J. Hollett, Marner, H. Lawson (Hon. Sec.), and three visitors.

REARING CALVES.—Mr. W. Marner read a short paper on this subject. The best calf was that reared on its mother's milk in the natural way, with the mother running on good pasture; but this is not profitable. The best way from an economic standpoint is to take the calf away from the cow when 24 to 36 hours old, then feed it on milk until the latter is fit for human consumption. The milk should be given warm, as cold milk has a tendency to cause scouring. The calf should be fed three times a day for about a month, and twice daily until, say, four months old. It should then be weaned. The calf should be provided with a warm dry shelter at night, but in the daytime should be allowed to run about.

ARSENIC AND HONEY FOR CODLIN MOTH.—In reply to inquiries from other branches Mr. Lawson said that he mixed 4ozs. of arsenic with 6lbs. of honey and smeared this around the butts of fruit trees early in spring to destroy ants. Since he had been doing this he had found no codlin moth in his garden, though formerly there was plenty of it. He knew of no other cause which would have destroyed the codlin moth.

MIDDLE-NORTH DISTRICT.

(PETERSBURG TO FARRELL'S FLAT.)

Belalie North, May 29.

(Average annual rainfall, 16½in.)

PRESENT—Messrs. Warner (chair), Cummings, Arndt, Tremlett, Atkin, Heithersay, Smart, O'Leary, Waldhutter, Bladon (Hon. Sec), and eight visitors.

CARE AND FEEDING OF COWS.—Mr. Arndt strongly advocated better attention for their dairy stock. The contrast between the care given in European countries and in Australia was very marked. In Europe they were carefully fed and warmly housed in the cold weather, while in this district it was a common thing to see the cows brought into the yard, milked, and then turned out to forage for their food as best they could. It was true there was a great difference in the climatic conditions, but the local practice was positively cruel. He strongly advised them in their own interests to provide proper shelter and food for their cows. The animals should receive oaten straw and cocky chaff mixed with sugar molasses. They should be fed in stalls with divisions so that one cow cannot interfere with the other. Chaff for cows should not be cut shorter than 3in. to 4in. long. The outlay on the farm in feeding cows as suggested was small, but the results were very satisfactory.

Feeding Fowls.—Mr. Cummings said the fowls must be well cared for if any profit was expected from them. They should have a good house with movable perches; the less wood the better, as there should be no harbor for tick. A good strain of fowls should be selected, and no roosters kept except with the breeding pens. Feed the fowls regularly and give some variety in the feed. Mr. Atkins recommended White Leghorns for egg-production. Green feed should be provided for the fowls. He thought it would pay farmers during the glut of the season to combine to send larger parcels of fresh eggs to the Produce Depot for storage.

Caltowie, May 3.

(Average annual rainfall, 17in.)

Present—Messrs. Neate (chair), Hewett, W. and E. Petatz, Williams, McCallum, G. Lehmann, Graham, and F. Lehmann (Hon. Sec.).

Horse-feeding.—A paper on this subject was read by Mr. Hewett, as follows:—" If men would feed and drive their teams in a more business-like way we should not see so many poor teams on the road and farm. Horses should not be given more feed than they will clean up, as if given too much they will only pick out the best of it and waste the rest. Feeding should be done at regular hours. When coming in hungry from work they should for preference be given long hay, as if fed on chaff at such times some horses will bolt their food without it being properly masticated. Sufficient hay should be given to each horse to last him about two hours, after which he should have a feed of good clean hay chaff with about three or four pints of white oats. All horses should have from one hour and a half to two hours' feed before being harnessed up for the day's work. At midday each animal should have about 7lbs. of good chaff, 2lbs. bran, and 3 pints of crushed oats well damped. Where practicable water should be laid on to the stable yard so that drink can be obtained at will. Horses should always be well groomed before going to work. A good grooming freshens a steed up in the same way that a good wash refreshes a human being. Collars should fit the horses well, and should not be changed from one animal to another, as two seldom have the same shaped shoulders. Changing collars is the cause of a great many sore shoulders. Whether on the farm or road, a good driver will always watch his team to see that each horse is doing his share. Each animal will know his name, and when spoken to will be made to do what he is told. Many drivers go along quite unconcerned as to whether one horse is doing all the work or not so long as the team is moving. There is a great difference in the temper of horses; some will stand the whip, others will not. We have seen horses that would stand or pull as often as desired if taken quietly, but under the whip they would not pull an ounce. A good driver will study the temper of each animal under his charge, and by judicious driving and kindness will soon have a team that any lover of horses would be proud of. At harvest time, when wheat has to be carted, it is a good plan to put on a light load at first until the horses know what they have to do, and after a few trips a good load can be taken without any trouble. This is much wiser than overloading at the start." A good discussion took place, and while agreeing with the general principles of the paper, some members doubted the wisdom of having water in the stable and of giving as much oats and bran as advocated therein.

Crystal Brook, May 8.

(Average annual rainfall, 15in.)

Present—Messrs. Lace (chair), Venning, R. and P. Pavy, W. and B. Weston, Morrish, Forder, Miell, Cook, Hutchison, Cowled (Hon. Sec.), and two visitors.

Trip to Western Australia.—Mr. R. Pavy gave an address on his recent trip to Western Australia. He spoke of the work done by the Government to make the State attractive, the many beauty spots provided for the people, the costly harbor, and waterworks. Mention was made of the advances made to settlers by the Government to enable men with small capital to take up, clear, and fence land.

Georgetown, May 8.

(Average annual rainfall, 18in.)

Present—Messrs. King (chair), Freebairn, McAuley, Fogarty, Wilson, Thomson, Hill, Myatt, and Eyre (Hon. Sec.).

New South Wales and Victoria.—Mr. W. Thomson read a very interesting paper on a recent holiday tour through Victoria and New South Wales. He was particularly struck with the immense area of agricultural land between Seymour, in Victoria, and Blayney, in New South Wales. For a distance of probably 400 miles this, with the exception of a few rough hills, was all fit for farming, and the rainfall was good. In addition to a fair amount of summer rain, the rainfall during the growing period of the wheat crop was good. They did not spend sufficient time in Victoria to be able to form any definite idea of its wheat-producing possibilities, but from what they saw in New South Wales they were satisfied that the country was capable of producing a great deal more wheat and hay than it was doing at present. It was true that much of this land was a long distance from port of shipment, but the cheap rail freights compensated for this. At Blayney, in New South Wales, they visited the freezing works, and were greatly impressed with the magnitude of the trade in frozen rabbits. Notwithstanding the fact that poison carts were at work everywhere, the trappers were bringing in 15,000 to 20,000 rabbits daily to this factory. This would give some idea of the magnitude of the pest. After travelling about 3,000 miles by rail and 300 by coach, they came back to South Australia impressed with the fact that for substantial farm houses and outbuildings they were far ahead of the other States. The paper was well discussed, and Mr. Thomson answered numerous questions concerning his trip. Members generally thought that as a whole South Australia was more progressive and advanced in her farming methods.

Mount Bryan East, June 5.

(Average annual rainfall, 15½in.)

Present—Messrs. J. Thomas, jun. (chair), Gare, Wilkins, Doyle, Tralagggan, Dare, Teddy, and Thomas (Hon. Sec.).

Mixed Farming.—Mr. Gare read a paper on this subject, to the following effect:—Careful stocking of the farm was essential to success. A few good mares should be kept to breed from, so that each year a few young horses would be ready to break in and take the places of old ones. If the latter were not required they would sell well. It did not pay to keep old horses to work, as they were slow and required extra feeding. Cattle also required to be studied. He favored the large-framed beasts, as they fattened quickly. The Durham and Hereford were good, giving a fair amount of milk, being readily fattened if desired, and they could be sold for ready money at a time when there was not much income. A few sheep should be kept on most farms. They kept the fallow clean and improved the quality of the soil. The Merino sheep were the best for that district. They did not need so much feed in the early spring as was necessary for some other breeds or for lambs for freezers. There was always a lot of feed on stubble land, and a fair amount of wheat left behind on which the sheep would do well for a time, and if not too heavily stocked would fatten for March or April sales. It was better to have a portion of the annual income derived from several sources than to be entirely dependent upon the wheat crop. Early fallow was to be recommended in this district as the spring was frequently dry, and by fallowing early the soil would get full benefit of the winter rains. Frequent working of the soil to retain moisture should follow. In ploughing, 4½in. was a fair depth, and six horses could work a four-furrow plough at that depth. Each succeeding working should be a little shallower until the seed bed was prepared to about 2in. deep. It was not advisable to work fallow in summer, as in his opinion more moisture was let out than taken in, and the land was likely to be left lumpy. [Shallow working, *i.e.*, with harrows or cultivator, in the summer to prevent the formation of a crust on the surface retards evaporation, but deep working causes loss by exposing the moist soil to the effects of the sun and wind.—Ed.] Good returns had been realised from 1bush. of seed and the application of 60lbs. of superphosphate to the acre. He had grown Dart's Imperial wheat for several years and found it satisfactory. It yielded well, was a good hay wheat, hardy, and never troubled with rust. Last year some of the small bags filled with this wheat weighed up to 214lbs.

Narridy, June 5.

(Average annual rainfall, 16½in.)

Present—Messrs. E. Smart (chair), P. Smart, Haren, Freebairn, Black, Liddle, Flavel, and Kelly (Hon. Sec.).

The Motor on the Farm.—Mr. Haren initiated a discussion on this question. Among the improvements made in agricultural machinery in the last 10 years one of the latest developments was the application of the motor to farm work. Motors of different types were destined to take the place of horses, and in practically every district oil engines were already found doing some of the work which used to be done by horsepower. He considered that if good motors were placed on the market, suitable for all kinds of farm work under different conditions of soil and weather, they would speedily find their way into most farms. A general discussion took place, in which Mr. Black agreed that the motor would soon supersede the horse for the bulk of the farm work. He thought, however, that while a motor would work very well on light soils, it would be a difficult matter to construct one that would work on stiff, sticky soil. Mr. Flavel did not think the motor would take the place of horses on the farm. He knew a farmer who had purchased a motor, but it had been a failure. Other members thought that, considering the price of horses, hay, harness, &c., the motor would eventually provide necessary power at a cheaper rate.

Port Pirie, May 29.

(Average annual rainfall, 12½in.)

Present—Messrs. Hawkins (chair), Johns, Munday, Bell, E. Bond, H. F. Welch, Noll, McEwin, Finnigan, Kavanagh, Stanley, Teague, Wilson, Jose, Birks, and Wright (Hon. Sec.).

Horse-breeding.—Mr. McEwin again read his paper on this subject (see page 959 June issue of *Journal*). In the lengthy discussion which followed, Messrs. Bell, Welch, Munday, Teague, Johns, Wilson, and the Chairman declared themselves in favor of breeding enough foals to keep up the farm working stock, but were doubtful whether it would pay in this district to breed for the market. Messrs. Stanley, Birks, and Johns considered Mr. McEwin's estimate of the cost of rearing foals too high, and the estimated price to be realised at two years too low. The Clydesdale type of horse was well spoken of for the farm and road. Mr. Birks thought the quality of feed had more to do with the progress made by a foal than the quantity of it. He advocated bran and oats in preference to chaff.

Wheat Commission.—Extracts from the progress report of the Royal Commission were read. Mr. Munday thought the wheat merchants were on the whole fair and straight in their dealings with the farmers. If the latter were not satisfied they should support a union of their own, such as the South Australian Farmers' Co-operative Union. He could not understand why every farmer did not become a shareholder in that union. A strong combination of farmers such as that could export their wheat and buy all farm requisites at a much lower cost than at present.

Whyte-Yarcowie, June 5.

(Average annual rainfall, 13½in.)

Present—Messrs. Pearce (chair), Hunt, Ward, Mudge, T. and H. M. Pascoe, Jenkins, and Lock (Hon. Sec.).

Eyre Peninsula Mallee Lands.—The Hon. T. Pascoe (member of the Railways Royal Commission) spoke on his recent travels on Eyre Peninsula. It was strange that so much land, with a rainfall of from 14in. to 20in., had been left idle so long. The country through which they travelled was mostly good mallee land, and 20 or 30 miles from the coast it improved in quality. He considered much of the land seen to be equal to the best mallee lands in the State, and estimated that they had travelled 250 miles. There were several millions of acres of this land on Eyre Peninsula. This and the land available between Tailem Bend and Loxton was apparently all blessed with a good rainfall, and should greatly increase the area of cultivated lands. He stated that a vigorous policy of railway construction was the first thing needed to open up this country. Settlement would then follow, and with improved methods and means for cultivation he could see no reason why South Australia should not double her output of wheat in 10 years.

Yongala Vale, June 5.

(Average annual rainfall, 13½in.)

Present—Messrs. Battersby (chair), Miller, D. and G. Dowd, Menz, Laubsch, Edson, Simon, Fowler, Schmidt (Hon. Sec.), and four visitors.

Working Dirty Land.—Mr. Edson read a short paper in regard to the best methods of getting land free from various weeds. Special attention was drawn to the necessity for thoroughly cleaning seed wheat before sowing. Passing it over a drake screen was a good plan. Stubble should be burnt as early as possible to destroy seed of weeds. The ground should then be scarified and harrowed to enable any seeds to grow that were left. When these were up the land could be cultivated to get rid of them. Members considered a grader to be better than a drake screen for cleaning wheat, and were divided in opinion as to whether it was better to plough in the stubble or to burn it. The skim plough was thought to be better than the scarifier for the former operation.

Yongala Vale, June 26.

(Average annual rainfall, 13½in.)

Present—Messrs. Battersby (chair), E. and C. Fowler, Menz, Floyde, Edson, Schmidt (Hon. Sec.), and one visitor.

Summer Fodder.—Mr. Menz read a paper, pointing out the importance of providing good summer fodder for milch cows and other stock. The dry grasses and stubble of this district did not contain the quality or quantity of nourishment which was found in districts further north. He was greatly impressed by a field of kale which he saw at Roseworthy College in 1907, and consequently sowed about three acres of stubble land with the same plant himself. He mixed the seed with super. and sowed it in rows about 14in. apart. Although it was sown as late as the beginning of June it did very well, though probably not so well as would have been the case if put in in April. He had also sown Hunter River lucerne seed with wheat, and found it did much better on limestone country than on the red sandy soil. He was highly pleased with the result of his experiments, as, in consequence of the lucerne and kale feed for the cows, there had been a material improvement in the butter returns.

LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

Angaston, May 29.

(Average annual rainfall, 21¼in.)

Present—Messrs. Ball (chair), Friend, Sibley, Player, Roberts, Plush, Salter, Thorn, Collins, Swann, Stevens, Wishart, Matthews (Hon. Sec.), and one visitor.

Manuring of Pastures.—Mr. Thorn read a paper upon manuring pastures and cultivation of grasses to the following effect:—"It has been well said that the man who can cause two blades of grass to grow where only one used to grow is his country's benefactor. On the other hand the man who follows up the racecourse as a means of livelihood is of no benefit or help to his country. He is like a useless weed in a grass paddock, which wants cutting up. Wonderful results have been seen from the application of manures in the last few years. This has made farming a thing to be desired rather than a last resource, and although we have seen wonders worked by the application of manure and better cultivation in the past 15 years, we shall see, not only on the farm, but on pasture land, in the garden and vineyard, greater improvements in the future. The destruction of useless weeds, and the sowing of a mixture of suitable seeds, followed by judicious manuring, would effect such great improvement in the quality as well as the quantity of produce, that 50 acres so treated would be better than 100 acres of ordinary grazing land left to grow anything or nothing. One of the first things to be done in the improvement of grass lands is the destruction of weeds that are not only useless, but worse. Grass and neglected lands cannot be expected to improve themselves. The coarser and less valuable plants from a feeding point of view, if allowed to do so, will increase and drive out the best grasses. The improvement of pasture land is a practical question worthy of the serious attention of all farmers who wish to increase the stock-carrying capabilities of their land. The improvement of permanent pasture land will be one of the most important questions of the future, both to the individual and to the State. During the last 20 years land has increased in value. Sheep and cattle are now realising tip-top prices. Will it pay to go to sleep and leave grass land to grow just what it pleases, or will it not pay better to wake up and improve grass land, and, by growing root and fodder crops, keep upon the same acreage twice the number of sheep and cattle as at present? This can easily be done, and there are indications already that many farmers are taking up this important work. The first question that is asked is, 'What are the best grasses to cultivate?' This largely depends upon soil and climate, but amongst the most likely grasses I would mention Italian Rye Grass, an early vigorous grower; Timothy and Rough Cocksfoot, hardy perennials; Meadow Foxtail, Sheep's Fescue, Phalaris commutata, Paspalum dilatatum, &c. Then several clovers are worthy of trial, but at the same time I think it would be as well for us to see to what extent we can improve the natural pastures by the application of superphosphate." In the discussion which followed the Chairman stated that a white clover was growing most luxuriantly at Gumeracha. Mr. Stevens had been very successful with English and Italian Rye Grass. He recommended Paspalum for summer, and spoke very highly of the Trifolium subterraneum.

Clare, May 7.

(Average annual rainfall, 24in.)

Present—Messrs. Jarman (chair), Lockyer, Bowman, J. and P. Knappstein, McCarthy, Walker, Pascoe, Radford, McKenzie, Kollosche, Kimber, Irvine, Nolan, and Kelly (Hon. Sec.)

Codlin Moth.—At previous meeting Mr. J. H. Knappstein read a paper on this subject to the following effect:— Codlin moth is on the increase instead of decrease, which ought not to be if all the growers would only take steps to eradicate it by means of spraying, &c. The moth is of a greyish color, and its usual habit during the daytime is to rest with its wings folded over its body on the trees, making it almost indistinguishable to the gardener, owing to its color so much resembling the bark. The first brood of the moth emerges just as the apple and pear trees are bursting into bloom. They then lay their eggs on any part of the foliage of the trees. These eggs take about 10 days to hatch, but that time varies according to climatic conditions. As soon as the young grub is born it makes for the calyx eye of the young fruit, and feeds perhaps for a couple of days in this cavity before it starts to bore into the centre of the fruit. The young grub grows with the fruit, and is full grown when the fruit is about quarter grown. It then bores its way out from the fruit, and lets itself down to the ground by means of a fine silken thread. As soon as the grub reaches the ground by means of this thread it looks around for the nearest shelter, where it spins a silken cocoon around itself, and then passes into the second, or chrysalid state. If these chrysalides are left undisturbed the moth breeds out in about from eight to 10 days' time. The second-brood caterpillars start boring from any part of the fruit, generally where two fruits are touching one another, or else where a leaf is growing against the fruit. In a long dry summer there may be three or more broods. The last brood, when they leave the fruit, do not pass into the chrysalis state, but spin a web around themselves in some sheltered spot, and there lay in their natural state until the following season, when they pass into the moth stage, and lay the first batch of eggs for that season. It will be seen in the foregoing notes that it is most desirable to kill the broods of grubs if possible as soon as they are hatched out and before they get into the fruit. This is done by spraying with various poisonous mixtures. I prefer using the arsenate of lead mixture, as it sticks to the fruit better and is not liable to be washed off as easily as most mixtures with the first rains after spraying. It is also cleaner to handle, does not crack your hands, or stuff the spray nozzle up like some of the lime mixtures. The first and, I think, the most important spraying should be done as soon as the flower petals begin to drop and before the calyx eye of the young fruit closes up. The eyes generally close up about 10 days after the petals fall off, and I do not think it would be of any use whatever to spray for the first brood of grubs after the calyx eyes have closed up. Continue to spray for other broods right up until the time for the fruit to be picked. Our own trees are sprayed about every three weeks, and we get most satisfactory results in the way of clean fruit. We also find it much cheaper to make our own poison mixture than to buy it ready made. Bandaging must be done in conjunction with spraying for eradicating this pest. Place a piece of hessian or any like material around the trunk about midway from the ground to the crown of the tree, so that when the grub is looking for shelter to spin its cocoon in it will find this want has been supplied for them. I have seen various ways of placing these bandages on the trees, and have come to the conclusion that there is only one way of doing it properly and quickly. and that is by pinning the two ends together with a nail. I have seen bandages tied on with string, but you cannot examine these quickly. I have also seen a nail driven through the two ends of the bandage and then into the tree. This is an absurd way of doing it, as you make fresh shelter for the grubs when continually making holes in the bark. The bagging from which the bandages are made should be cut into strips about 10in. to 12in. wide, and long enough to go around the trunk of the tree. These strips should be folded over in half, so that the bandage is really only 5in. or 6in. wide. These bandages must be examined every eight days, and all the grubs in them killed. On no account should they be neglected, as otherwise you will only be making a breeding-ground for the moths. With a blunt knife scrape the old loose bark off the trunk and limbs of the tree, so that the grubs will not find any shelter there. Also cultivate well, as the grubs do not always make back to the trees after they reach the ground, but sometimes get under any old rubbish, grass, &c., and pass into the chrysalid state there. Codlin moth is going to be a very serious pest with orchardists in a very few years if something is not done shortly to make it compulsory for careless gardeners to spray, &c. I think the fruit inspectors should have more power. They should have the right to put a couple of men into a garden to spray, if the owner will not do it, and then charge him with all the expense. It is no use some growers saying "I will not spray or bandage, because my neighbor does not do it." If all the orchardists were to have the same excuse I could safely say there would not be 25 per cent. of clean pip fruit in the State. It should also be unlawful to sell grubby fruit, as the careless gardener can at present get almost as good a return for his unsound fruit as the careful gardener can for his sound. Paper was well discussed. Spraying with arsenate of lead was favored. Three sprayings at the right time would prove effective. Members generally favored mixing the arsenate of lead themselves instead of paying high rates for proprietary articles.

Manuring of Orchards and Vineyards.—Mr. C. J. McCarthy read a paper on this subject to the following effect:—Most of the orchards and vineyards in this district are from eight to fifteen years old, and are in their prime, producing some good crops, both in quality and in quantity. I make bold in saying that this cannot last much longer. It does not seem reasonable to expect that the land will, even with careful pruning and good cultivation, yield good crops and support the trees or vines unless we put something back into the soil. I believe, with a liberal supply of manure applied to the soil at the right time, our high standard of fruits will be maintained, if not increased. Trees and vines must be kept in a healthy condition, and fairly vigorous in growth. Now, if we have a heavy crop one season there will be, as a rule, little or nothing on those trees or vines the following one. Nature provides this rest, as it were, for them to build up strength enough to produce another crop the next season. With the help of manure I am sure we will get more uniform crops each season. In 1903 we noticed some of our Cleopatra apple trees, after bearing a heavy crop, sickly and stunted in growth, some limbs showing die back. Having some well-rotted stable manure, we gave those trees a good dressing of it, spreading it out well from the base of the tree, and ploughed it in fairly deep. This gave good results ,and the trees have borne several good crops since, and now look as strong and healthy as the others. We make it a practice to give any small or stunted tree a good dressing every season, and in time will build them up to the same size as those adjoining. Like many other good things, there is not enough to go all round of stable manure. Therefore we will have to choose the next best. To find that out it will require some practical experience. If we ask our experts they say, "Oh! Climatic conditions, variations in the soils, &c., so try for yourself." Good bone and phosphate, no doubt, are suitable to most soils where there is a good rainfall, and, in my opinion, the best way is either to drill it on the top of the ground before the plough or plough the land fairly deep and drill it in before the land sets. This should be done in the late autumn or early winter, so that the heavy winter rains will dissolve and convey it in a liquid state down to the roots. In most gardens or vineyards of any size there are to be found poor patches, and those are the parts I would recommend growers to first try to bring to the same standard as the more favored places. It is the good average crop of anything that always pays best. We hear and read a lot about green manure, and no doubt it looks all right on paper; but I doubt very much if it will ever take the place of the dry article. If gardening is going to be a profitable business we will soon see the drill in as general use among the trees and vines as a fertiliser as it is on the farm at the present time. I may state that we manured the greater part of the orchard and vineyard last season with artificial manure, mixing equal parts of bone and blood, adding one-fourth potash, and drilled in about 3cwts. to the acre. Although we had record crops of pears and grapes, and both trees and vines made good growth, I am not prepared to say definitely how far they benefited, as it takes more than one season to derive the full strength from those manures, but we anticipate good results for the coming season. The paper was discussed at some length. Bonedust was favored for orchards and vineyards. to be drilled in instead of being put more thickly in the furrows in the middle of the rows. About 3cwts. per acre was recommended: too much manure will cause rank growth. August was considered the best time to apply manure.

Gawler River, May 28.

(Average annual rainfall, 18in.)

Present—Messrs. Leak (chair), Davis, Roediger, Hillier, Dunn, Spencer, A. M. Dawkins, Richter, Winckel (Hon. Sec.), and one visitor.

Humus.—A paper on the subject of humus was read by Mr. A. M. Dawkins, as follows:—"Humus consists of decaying animal and vegetable matter, and exerts a very powerful influence on the fertility of the soil. Science now teaches us that the soil is not dead, lifeless matter, but full of living micro-organisms and bacteria ferments; and authorities on sanitation advise the use of soil as a deodoriser and disinfectant because of the action of the action of the micro-organisms in causing the decomposition and destruction of the waste animal matter. Humus is of great value in soils, and is in a marked degree the measure of its fertility. It is true that humus cannot directly serve as plant food, but it forms the home of teeming millions of ferments that cause the decomposition of vegetable and animal matter, the products of which are highly important as a source of plant food. The biological aspect of soil-fertility is in its infancy, and we have a lot to learn in this direction. But many scientific men lean to the opinion that the bacteria form one of the essentials in soil-fertility. To add humus to the soil is to increase these silent and secret friends of the farmer. This can be done by the application of farmyard manure, which is full of ferments, by the process of green manuring—that is, planting a quick-growing crop, such as mustard, peas, or rape, and ploughing it in—and by the accumulation of crop residue, such as stubble, leaves, roots, &c., which all tend to build up humus in the soil. South Australian farmers in the past have been too fond of firing the crop residue, burning stubble, &c., and gradually reducing the vegetable mould instead of increasing it. In a warm dry climate such as ours decay is slow in taking place, but it will pay to adopt a three years' rotation, and by this system all the crop refuse can be returned to the soil. I do not look upon stinkweed as an unmixed evil. It can be ploughed in when fallowing, and the final result will be beneficial. Humus has more than a biological effect on the soil, its mechanical effect being very important. Sandy soils are benefited, as vegetable matter checks and retards the tendency to drift, and I know of no better way to deal with sandy country than to plough in as much vegetable matter as possible. It has also the beneficial effect of making it firmer. On a clay loam deficient in humus the land quickly becomes very wet and boggy, and as quickly dries and becomes too hard to work. Such land will be too wet one day, and a week later be too hard. There is some of this land on the Gawler Plains, and some in this neighborhood, and those who have it know how difficult it is to work. On these soils humus has a physical value on account of its property of loosening and opening up the soil. Humus has a good effect on all soils, because the capacity which a soil has for retaining water is intimately related to its richness in humus. A soil rich in humus will not quickly get water-logged, nor become sodden and boggy and work up into slush, as is the case with soil deficient in organic matter. A soil well supplied with humus will not quickly dry out and become hard and unworkable, nor will the crop so quickly suffer from drought. As regards the physical properties of humus, it is a well-established fact that humus greatly affects the temperature of the soil. It requires a large quantity of heat to raise the temperature, and the cooling is equally slow, thus providing protection for the crops from the bad effects of frost." A good discussion followed, members generally indorsing what had been said in regard to ploughing in stubble, grass, stinkwort, &c. It was pointed out that it was very necessary to thoroughly work the land down, as otherwise it might lie too loosely. Some advocated growing a crop of peas before wheat, while the experience of others was that there was no noticeable difference in wheat crops so grown.

Nantawarra, June 2.

(Average annual rainfall, 15in.)

Present—Messrs. A Herbert (chair), E. Herbert, Sleep, Dixon, Smith, Nicholls, Greenshields, Gosden (Hon. Sec.), and one visitor.

Annual Meeting.—The report of the work of the year just closed showed that eight meetings had been held, with an average attendance of seven. Several profitable papers were given during the year. A public meeting was held at Nantawarra Public Hall, when Mr. Loxton, Assistant Government Veterinary Surgeon, spoke on common ailments of stock, illustrating his lecture with lantern views.

Trip to New South Wales.—Mr. J. Nicholls gave an account of his visit to the Inverell district of New South Wales. He spoke very highly of the quality of the soil in that locality, and of the rainfall and good water supply. He considered it to be excellent country for farming. The work of the South Australian farmer in the other States was also well spoken of.

Northfield, June 1.

(Average annual rainfall, 19in.)

Present—Messrs. Dall (chair), Goldney, Kemp, Holbrook, Nelson, and Mitchell (Hon. Sec.).

Fallowing.—Mr. Kemp read a paper on this subject, and also on takeall. In this district early fallowing was recommended. The more moisture that could be got into the soil the better the result would be. Much care should be exercised to plough to the proper depth, this being governed by the depth of the soil. After ploughing a good harrowing should follow, and the land should then be scarified once to the same depth as the ploughing was done. Soil treated in this way, and afterwards subjected to scarifying-harrows would assume a uniform surface, and form a splendid seed bed.

Takeall.—Wherever Mr. Kemp had grown a crop of peas no takeall was observed in the next year's wheat crop, nor did much appear after a crop of oats. Two years ago, when takeall was so prevalent, he had 40 acres under cultivation. Twenty acres had grown two crops of oats in succession. The other 20 had grown one crop of wheat and was then fallowed. Where the oats had been grown there was no takeall, but in the wheat-tilled fallowed portion he believed there was almost one-third takeall. In the discussion which followed, the members generally agreed with the views expressed in the paper.

Stockport, June 7.

(Average annual rainfall, 16in.)

Present—Messrs. Megaw (chair), F. and J. W. Watts, Perry, Vogt, Smith, Mitchell, Whitelaw, Howard, Rodgers, Murray (Hon. Sec.), and one visitor.

How to Increase the Stock-carrying Capacity of the Farm.—Paper read at September Congress on this subject was discussed. Mr. Godfree agreed generally with the paper; there was no doubt that it would pay to use heavier dressings of phosphate. He believed they would have to sow fair areas especially for green feed, and to have smaller paddocks. Mr. Whitelaw said he thought the paper a very valuable one. The position was that with liberal dressings of phosphates the farm would produce during three or four months more than the stock could profitably utilise. To make the best of this it was necessary to grow other feed, so that the farm could be stocked to its full capacity. To grow 50 acres of green feed would undoubtedly be a great improvement, but this would only provide for another three or four months. In his opinion it would be more profitable to devote 50 acres to hay-growing with the distinct purpose of hand-feeding to sheep. They should get at least 75 tons of hay off the 50 acres; this at £2 per ton would bring in £150, but fed to sheep it would return a much greater income. Seventy-five tons of hay would give 305 sheep 1½lbs. daily for 12 months, and with the other grazing they would get they should bring in nearly £200. While the feed was plentiful they would of course not require to feed the hay to the sheep. Another point of importance was that in selling hay it was so much fertility removed from the farm, whereas by feeding it to sheep a great portion of it was returned to the land in the form of manure. Mr. Watts thought it would pay to sow some oats on all their stubble paddocks and harrow or cultivate it in.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

Bute, June 1.

(Average annual rainfall, 15in.)

Present—Messrs. Wauchope (chair), A. and H. Schroeter, Scholefield, Stevens, Trengove, A. and E. Cousin, Commons, Buchanan, McArthur, and McCormack (Hon. Sec.).

Tree-planting.—Mr. Buchanan initiated a discussion on "The Advantages of Tree-planting." In order to appreciate the utility of systematic forestry we needed only to transport ourselves into some arid region and view the desolation which existed. There the animals by their actions—shading their heads under each others bodies—asked plainly for protection from the sun on a summer's day. He considered the best method was to plant the trees along boundary fences or in corners, where they would not greatly interfere with cultivation, and would occupy space which was otherwise practically waste ground. It was a matter for regret that heavily timbered country was being practically denuded of trees, although, happily, that was not the case in this district. Fine trees were to be seen along the roads and in the paddocks, and, best of all, surrounding the homesteads. He had known an instance at Loxton where upwards of 600 acres had been cleared, with the exception of a few pine trees. The result was that after it had been cropped the land commenced to drift, covering up fences and doing a great deal of damage. This would probably have been averted had belts of trees been left standing along the tops of sand ridges. Not only were these belts of trees a shelter from the heat in summer, but they also afforded a splendid protection from the cold winds in winter. Trees maintain normal temperature under all conditions, hence the surrounding atmosphere was cooler in the summer and warmer in the winter than was the case in the open. From the standpoint of beauty, trees were a great acquisition to a farm, materially enhancing its value. It was claimed that belts of timber tended to improve the rainfall, and instances were quoted in support of this contention. In conclusion he would exhort all to set aside a few days each year for planting trees, and to encourage others to do the same. The most suitable trees to plant in this district were English evergreen, sugar gum, Remarkable pine, and pepper tree. Mr. S. Trengove had undertaken tree-planting the last few years, and had had very little success with the seedlings supplied by the Government in bamboos, but had very few trees die when he transplanted from pots. He advised all farmers to plant a hundred trees each year, and it would not be long before they would have a plentiful supply of timber. Mr. A. Schroeter said trees planted in this district would not produce such heavy nor valuable timber as when planted on heavy clay soil. The best method of planting was to fallow the ground say 6in. or 7in. deep 12 months previous to sowing. He had grown sugar gums successfully from seeds of his own selection. In Germany, where the forests were under Government control, a man was not allowed to fell a tree unless he planted another in its place, and he had read that the same rule existed in Japan. Mr. J. Wauchope did not agree that trees increased the rainfall. In this district, which he knew very well when it was dense mallee scrub, his experience went to disprove that contention.

Minlaton, June 5.

(Average annual rainfall, 17in.)

Present—Messrs. Boundy (chair), A. and R. H. McKenzie, Cook, Martin, and Vanstone

Pickling Wheat.—Mr. R. H. McKenzie stated that wheat treated with fungusine came up more quickly, and seemed to get a better start than that pickled with bluestone. Mr. Vanstone had been unable to perceive any difference between the ultimate result of these two pickles. The members agreed that it was advisable to pickle the seed if the ground was wet at seeding time.

Standard Sack.—Members were of opinion that the bags were all right for wheat, but were useless for other purposes.

Paskeville, May 27.

(Average annual rainfall, 15½in.)

Present—Messrs. Price (chair), Goodall, Wehr, Pontifex, Bussenschutt, Forbes, Koch, Palm (Hon. Sec.), and 15 visitors.

Stock Complaints.—Mr. Thomas Williams, Deputy Chief Inspector of Stock, gave an interesting chat on various complaints of stock, and showed by means of his microscope the bacteria responsible for some of these. Dealing with the recent outbreak of anthrax in the district, he thought this must have been introduced in bonedust or other bone manure, but they had no proof of this. Certain manures contained crushed bone and blood. If these bones contained the germs of disease and were not properly sterilised then those germs are spread about the land. Horses in feeding bite closer than cattle, and when feed is young often pull up some soil with the grass; perhaps in biting close they bite soil. In this way the germs get into the animal and have plenty of opportunity of getting into the blood. The disease of anthrax took several forms. The apoplectic form was very quick. A horse might be well at 12 o'clock and die at 3 o'clock, but the usual form lasted about 48 hours. The symptoms they would notice would be the horse standing aside, not feeding, but looking dull; then it might feed, again become more groggy, and lie down, showing signs of colic pains. Afterwards, walking about, the colic pains being more marked, the temperature rose to perhaps 106 degrees. About an hour after it would be below normal (99 degrees), the extremities being quite cold, breathing very distressed, and in a short time the animal dies. If a drop of blood were examined it would be found to be not true blood, but of a tarry nature. The first step a farmer should take in this case—in fact any time an animal dies suspiciously—was to communicate with the Chief Inspector of Stock. Keep all other animals away, clean up where the dead beast had been, and burn the body. If the animal died in the stables, clean everything, burn all dung, and thoroughly wash the stables. For the benefit of the Stock Inspector it was only necessary to cut off a small part of the ear of the dead animal and put carefully in a pickle bottle. From this the Inspector could make his microscopic examination of the blood, and find out the disease. There was no cure for the disease. The only thing was to innoculate the animal with vaccine prepared from the bacteria of anthrax. This produced a mild form of anthrax and rendered the animal proof against the diesase. The animal was vaccinated in the neck, just under the skin. Mr. Williams then dealt with tetanus, or lockjaw, and showed a microscopic slide of the germs. The symptoms are shivering and difficulty in walking; the hind legs may be spread and the body becomes affected. There is a stiffness in gait, and the muscles of the neck become stiff and hard. The disease arises only in wounds to which the germs have gained admittance. The presence of air prevents the action of these germs. A clean cut can be washed and kept open, but on a puncture the cut is very small and closes almost at once, and herein lies the danger. Some germs may have been taken inside, and here excluded from the air. The remedy is to cut in and clean out the wound with hot water, soap, and carbolic solution. Use a strong solution of carbolic, 30 to 40 per cent., or a teaspoonful to two of water, and wash well. Very little can be given in the way of physic. Liquid food may be given. An intelligent horse will suck this in. The germs of this disease are very common, especially round stables, sheepyards, &c., In dealing with lambs no matter how clean you may have your knives, the animals are often turned into old sheep yards, and by lying down become infected with the germs and develop lockjaw. A slide of consumption germs was then shown, and Wr. Williams explained the action of this disease. If a dead beast were not burnt it might spread the disease. Red worms in horses were next dealt with and the life history of the insect referred to. A hearty vote of thanks was accorded to Mr. Williams for his address.

Pine Forest, June 1.

(Average annual rainfall, 13in.)

Present—Messrs. Johns (chair), Adams, Nelson, Bayne, Pearce, Barr (Hon. Sec.), and one visitor.

Horses Killed by Eating Wheat.—Mr. Bayne reported loss of three out of four horses which had eaten about 6bush. of wheat between them. This wheat, pickled for seeding, had been left in a paddock ready for the drill, and the animals were accidentally admitted to the paddock. The owner considered the quantity of wheat eaten quite sufficient to kill the animals. He would like the veterinary surgeon's opinion as to whether the usual solution of bluestone in that quantity of wheat would be sufficient to poison them. [The amount of wheat eaten was probably sufficient to cause death, but at the same time it is practically certain that any considerable quantity of wheat pickled with bluestone would carry a sufficient quantity of the poison to cause serious illness, if not death.—Ed.]

Barley *v.* Wheat.—The Chairman directed attention to a printed statement by Messrs. Barrett Bros. on the comparative yields of wheat, oats, and barley. Members thought the comparison very unfair, as rich land worth from £20 to £40 per acre with a good rainfall was generally used for barley-growing, while thousands of acres which yielded good wheat crops would not grow barley at all. They maintained that wheat was more profitable to grow than barley in that district.

Fodder Crops.—Mr. Birks' paper on this subject, from page 864, May *Journal*, was read by the Chairman. Members considered this to be a valuable contribution to the successful raising of stock in districts with a limited rainfall.

Tree-planting.—The Chairman read a paper on this subject, in which he emphasized the need of shelter from the wind and wet in winter, and shade from the summer sun for all farm stock, and pointed out that a little time and care spent in tree-planting would provide all that was necessary in this direction. Animals that had this protection kept in good condition with a moderate supply of feed. Wisely planted, trees also served as a breakwind, and saved the wheat crop some of the evil effects of the hot north wind. The planting of trees improved the appearance of both town and farm alike, and the shortage of timber and consequent high prices paid for it were compelling more attention to the need for systematic planting.

WESTERN DISTRICT.

Butler, June 7.

(Average annual rainfall, 13in.)

Present—Messrs. Butler (chair), Young, Easter, Harrowfield, Trezise, Barr, Jericho (Acting Sec.), and three visitors.

Care of Horses.—Mr. Jericho read a paper on this subject to the following effect:—In the first place only the best mares should be used for breeding. Where the working horses looked well they would generally find the owner looked after his horses well, and attended to his other work, and was, as a natural consequence, fairly well-to-do. Young horses should always be fed in the stable when feed was scarce. They should be well sheltered from cold wind and rain in winter, and should be able to get shade from the sun's rays in the hottest weather. Clean drinking water should at all times be available. Good dry stables were essential, and details should be arranged to ensure each animal getting his due share of feed. Working horses should be fed and watered at regular hours, and thorough grooming was very necessary. In his opinion, young animals, especially of the lighter breeds, should not be broken in until over 3 years old, and then they should not be worked too hard. Leaving a sweating horse in a cold wind again and again would quickly ruin him, and as a practice should be condemned. In the discussion which followed, most members declared themselves in favor of breaking in young horses at 2 years of age, but would only give them light work.

Veterinary Surgeon.—Members signed a petition, received from Koppio Branch, requesting the Government to make some arrangement for a veterinary on Eyre's Peninsula.

Cummins, May 29.

Present—Messrs. Cooper (chair), Gordon, K. and A. Slater, J. Durdin, Hall, Nosworthy, Farmilo, Siviour (Hon. Sec.), and 10 visitors.

Smut in Wheat.—Reference was made to the statement that in the neighborhood of Mundoora early wheats had been found to be more liable to smut than the late varieties. Members agreed that the same was true in this district, although they could not explain the reason. Two members stated that Yandilla King was very subject to smut, and recommended that it always be pickled before sowing. [Is not this rather a contradiction of the statement that early wheats are more subject to this trouble than late varieties, as Yandilla King is certainly a medium-late variety.—Ed.]

Size of Cornsacks.—Members were of opinion that the standard wheat sack should be a little wider and deeper than the present one, so that they would contain 200lbs. of grain. They also complained that some of last season's bags were of very poor quality, a defect that should be remedied in the future supply.

Fowler's Bay, June 5.

(Average annual rainfall, 10½in.)

Present—Messrs. Giles (chair), Riddle, Hardy, Winter, Voacke, Atkins (Hon. Sec.), and two visitors.

Castrating Colts.—Some members were in favor of this operation being performed before the foal was weaned, and all agreed that it should be done by the time the animal was eight months old, as after that time there was more likelihood of injurious consequences.

Fallowing.—Mr. Riddle wished to know what was the best time to fallow in this district. Members thought August was the best month, as all the weeds had a good start by then.

Goode, May 22.

Present—Messrs. Burner (chair), L. and C. Will, Watson, Tonkin, Nicholls, Rohlack, Lymn (Hon. Sec.), and two visitors.

Manures.—An interesting discussion on the use of manures took place. Mr. Nicholls had tried different quantities of superphosphate, but the smaller dressings appeared to give the best results. Members were agreed that it was better to buy high-grade manures and apply small dressings than to get a lower-grade article and apply more of it.

Best Wheats for District.—Members were considerably divided in their views on this subject. Wheats that have yielded well with some members have failed with others, though grown under similar conditions. The majority of the members favored King's Early and Gluyas. Mr. L. Will found Comeback do well, as it yielded 3bush. more per acre than any other variety.

Koppio, June 3.

(Average annual rainfall, 17in.)

Present—Messrs. Price (chair), G. and M. Howard, G. B. and M. Gardiner, Newell, Thompson, Brennand, Roberts, Richardson (Hon. Sec.), and one visitor.

Draining Land.—Discussion on this subject was initiated by Mr. Gardiner. He thought that by draining some of the low-lying flats they could be used for cultivation. By running a furrow down the gullies, the water would drain away instead of soaking in. Two members had tried this with success in boggy gullies, reaping good crops from land which had previously been useless. It was thought that if all the small gullies were drained in this way the gutters being washed out would become a nuisance, but that in the larger gullies and on the flats the good done by the draining would more than compensate for the washing out of the gutters. The Chairman thought more attention should be paid to water conservation. By blocking some of the creeks which only ran during the winter, a large quantity of water could be stored, and the land below could be irrigated successfully in the dry months.

Manures and Manuring.—The paper on this subject from Brinkworth Branch's report in May *Journal* was read and discussed. The Hon. Sec. had been increasing the quantity of manure on his land for some years, and was quite convinced that the increase paid well. Members were divided in their opinion as to the advantage of heavy dressings of manure, but each one present undertook to sow five acres with 1½cwts. of super. per acre and report the result after harvest. [This is the only satisfactory way of testing the value of heavy dressings. When reaping, an equal area of land alongside should be reaped separately, and the crops from both weighed. The effect on the feed should also be carefully noted next year.—Ed.]

Miltalie, May 29.

(Average annual rainfall, 14½in.)

Present—Messrs. Atkinson (chair), Fairbank, W. G. and E. P. Smith, Robinson, Howell, F. and B. Jacobs, Laffin, and Hier (Hon. Sec.), and two visitors.

Dairying.—Mr. F. Jacobs read a paper dealing with dairying in this district, to the following effect:—For profitable dairying it was essential to procure good cows, and then provide plenty of feed for them. They should also be able at any time to get good drinking water. It was wise to divide the farm into small paddocks, moving the cows from one to another from time to time. They should not be allowed to lie about the yards, but after feeding should be shut in the paddock. Early feed, such as barley, should be grown and fed to the cows, to get a good supply of butter while the price was high. A great asset was a shed full of cocky chaff. Fed damp with a little bran added it was a good milk producer. The bran was a preventive of dry bible. A stack of straw in the paddock provided good shelter, and was something for dry stock to eat. In his opinion the feeding of the cow was more important that the breed, but his favorite was the milking strain Shorthorn. Most of the cows should come in as early as possible in April. A cow should be dry three months before calving, while a heifer should be kept milking up to within two or three weeks of calving, even if she only gave a very small quantity, in order to develop the milking habit. Many milkers were spoiled by being allowed to dry off when they had been in milk about five months. Cows should not be fed till after milking, and during the milking should be kept quite quiet. A heifer should not be leg-roped if it could be avoided; 19 out of 20 would never need it if gently handled. When a cow had calved she should be left for eight or 10 hours, after which the calf should be taken away and tied up where the mother could not see it. A bran mash should be given to the cow at this stage, and when 12 hours old the calf should be given some of its mother's milk. Cleanliness was very important. The cows' teats should be washed and the hands of the milker also after every two or three cows. Buckets, separator, cream cans, churn, and every other utensil should be kept scrupulously clean. Cream should be allowed to cool before mixing, and a little salt, say a handful to 4galls., should be added. This should be stirred twice a day, and not kept too long before churning. The observance of these details would go a long way towards making good butter. One man could manage 15 cows, and 150 acres of almost any of the old cultivated land where mixed farming was carried on in Franklin Harbor would carry that number. Fifteen fair cows should give an average of 6lbs. of butter per week each for 38 weeks in the year. Taking 10d. per pound as a fair average price, the income would be £142 10s. per annum. Fifteen calves at 12 months old should be worth 30s. each. After the calves were weaned 15 pigs could be reared on the skim milk, worth £1 each at six months, making a total of £180. Allowing £100 for all expenses, a profit remained of £80. A good discussion followed. Some members favored the addition of salt to the bran and cocky chaff, while others preferred to mix sugar with it. Dry bible was mentioned as a serious trouble with which the dairyfarmer had to reckon. All would be glad to know the cause and cure of the disease.

Foxes and Dingoes.—A member wished to know whether these would live on friendly terms in the same locality

Petina, June 5.

(Average annual rainfall, 12½in.)

Present—Messrs. Penna (chair), Newbon, J. J., H. A., and C. Trezona (Hon. Sec.), and one visitor.

Manures and Manuring.—Mr. McEwin's paper on this subject, from the Brinkworth report in the May *Journal*, was read, and a good discussion ensued. Mr. Trezona agreed that phosphate of high percentage should be used. Members were unanimous in the opinion that it would pay to use super. freely. Mr. Trezona stated that the general impression ruling in the district seemed to be that 60lbs. or 70lbs. of super. per acre was sufficient, but he had proved that it paid to put on a much heavier dressing than this. He had sown Marshall's No. 3 wheat with 120lbs. Wallaroo super. per acre, and another plot under same conditions with only 60lbs. of super. The crop from the more heavily dressed land gave 12½bush. per acre, and the other only 10bush. The following year the stubble of these plots was drilled over with 60lbs. of super. each. The one which had had the heavier dressing in the former season yielded 9½bush. and the other 8bush. per acre. A considerable difference in the grass was also to be seen this year. Mr. Newbon said that wood ashes were of little value on his land as compared with super. He had drilled in about 2cwts. of ashes per acre and reaped little more than his seed. On strips on each side of this plot he had reaped 6bush., the wheat having been put in with 50lbs. of super. per acre.

Shannon, May 29.

Present—Messrs. Neate (chair), Habner, W. and H. Glover, Kain, Proctor, J. and M. Cronin, Robins, W. M., E. B. and W. Smith, J. J. Cronin (Hon. Sec.), and five visitors.

Tick in Pigs.—Mr. Cronin wished to know a remedy for this trouble.

Farm Management.—Mr. Cronin read a paper dealing with general matters of farm management, to the following effect:—"The first work to be done in that district where vermin abounded was to erect fences, and if the cleared land extended to a boundary a permanent one should be put there. It was difficult, however, to accurately lay out paddocks while the scrub was still on the land, and there was great danger of losing a fence or two by fire until the land was cleared. For this reason he recommended light fences on scrub land to keep out the kangaroo. This done all available labor should be put on to clearing and ploughing. Fallowing was necessary in this district to enable the farmer to get the seed in at the proper season. This year had shown the necessity for this provision. A great many farmers had had to wait until after the rain (about April 20th) before ploughing could commence. What chance had they to plough, drill, and harrow a reasonable area of land with, perhaps, one team of horses in the time available? Horses should not be worked excessively long hours. There was frequently work to be done in which these animals were not needed, and they should accordingly be allowed a spell when possible. When the green feed had grown sufficiently the horses should be turned into it for about an hour each day. This would go a long way towards keeping them in good health." A good discussion followed, members being unanimous in the opinion that as much land as possible should be got under fallow over against the following seeding.

EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES.)

Coonalpyn, June 8

(Average annual rainfall, 17½in.)

Present—Messrs. Fidge (chair), Hill, Venning, Cavanagh (Hon. Sec.), and five visitors.

Fallowing.—Mr. Hill initiated a discussion in regard to fallowing. He favored ploughing fairly deeply, after which he would harrow as often as practicable. Before seeding he would use the plough again rather than the cultivator. Members were agreed that fallowing was necessary here, but would not plough again before sowing, as that procedure would let out the moisture which had been conserved by the working during the year.

Exhibit for Show.—A suggestion was made by Mr. Venning for securing an exhibit at the March Show. Members agreed to co-operate to secure an exhibit of all the products of the district.

Sorghum Poison.—Mr. Venning referred to reports on sorghum poisoning of dairy cattle. Members agreed that this feed was dangerous at certain stages of its growth and should be kept for 24 hours after cutting before being fed to stock. [There is no danger of poisoning after the sorghum has reached the seeding stage.—Ed.]

Forster, May 29.

(Average annual rainfall, 10½in.)

Present—Messrs. W. Towill (chair), W. and J. Searl, Payne, E. and A. Towill, G. and C. Helbig, W. and J. Johns (Hon. Sec.), and three visitors.

Fallowing.—Discussion on this subject took place. Mr. W. Towill thought that fallowing should be done with a narrow furrow, and should then be well worked down to keep the weeds under.

Management of Horses.—Mr. W. Johns read a paper on this subject to the following effect :—Five medium draughts, as nearly one size as possible, made a good team. Thick-set animals were more easily kept than long, loosely-made ones. A very important item in the care of horses was a good, well-fitting collar for each. Feed should be good, and given at regular hours. Clean water and a dry stable, cleaned out every morning, and a good grooming for each animal, all contributed much to the health and condition of the animals. The importance of a capable and considerate driver was emphasized, and the following method of feeding given :—Two gallons of wheat or 3galls. of oats, to be well boiled, and while hot to be mixed with a gallon of pollard, half that quantity of bran, and a large bag of cocky chaff. This to be left in a box to soak from one meal to another, and to be fed three times a day. Plenty of good long hay to be given the last thing at night. Members wished to know whether it was better for horses to be fed with the boiled grain as described in the paper, or to have oats and cocky chaff dry.

Lameroo, June 5.

(Average annual rainfall, 16in.)

Present—Messrs. F. W. Eime (chair), Trowbridge, Edwards, White, Shannon, Skinner, Jeffrey, Needs, Leckie, W. M. and F. Thyer, Mead, C. R. Eime, Wray, Boss, Wittwer, Vigar, Kentish, R. B. and A. J. A. Koch (Hon. Sec.), and two visitors.

Annual Report.—The Hon. Secretary's report showed that 11 meetings had been held, with an average attendance of 14 members and four visitors. Eight papers had been read and discussed, and the year generally had been a prosperous one.

Dry Farming.—Mr. F. Thyer read a paper on "The Campbell System of Farming under Dry Conditions." He described the principles of this system, and quoted from reports of Bureau meetings the views of farmers in different localities. It was certainly a fact that they could by cultivation lessen the effect of dry seasons. Some years back, when such dry times were experienced in the Northern Areas, it was noticed in almost every district that some farmers were reaping double as much wheat as their neighbors. Dealing with the Campbell system, he said there were some soils which, if worked as directed, would set down like cement with the first heavy rain, and care was necessary not to work such soil down to a fine surface. In this district, however, he thought the principles of this system could be adopted with advantage. They had a splendid subsoil, that would hold the moisture better than most, and if the surface soil was properly prepared their crops should withstand a long spell of dry weather. In this district the land should be fallowed as soon as possible after seeding was finished, as the soil is then in the best state for working. The more green herbage that can be turned under with the plough the better. He did not think the subpacker of any use in this district, owing to the presence of stones and stumps. In clear land it would probably be useful in firming the soil underneath. When the stubble has been burnt off he would cross-harrow with a heavy set of harrows, as this will break the surface to a fine tilth, so that the first rain will penetrate. In July plough to depth of 5in. or 6in. ; where the surface has been harrowed this fine surface soil will be turned under, but if the surface is lumpy these lumps may remain until disturbed at next ploughing. After ploughing he would cross-harrow, and repeat this operation after each rain, to prevent the formation of a crust on the surface. By keeping 2in. or 3in. of the top soil loose the evaporation of moisture is retarded. The paper was well discussed, members generally agreeing that a modified form of the Campbell system would suit this district.

Cabbage Aphis.—In reply to a question, Mr. Wittwer was advised to apply slack lime or kerosine emulsion for this trouble. [Tobacco water, with a little soap added, will be found effective for this insect. The plants must be thoroughly sprayed on the under as well as the upper sides of the leaves, and the operation should be repeated within 24 hours.—Ed.]

Sherlock, May 29.

(Average annual rainfall, 15in.)

Present—Messrs. Wood (chair), Goldsworthy, C. J. and A. Osborn, Whyatt, Arbon, Slater, Hart, Nock, F. C. and R. H. Stringer, Coombe (Hon. Sec.), and nine visitors.

Hoe *v.* Disc Drill.—Mr. Arbon initiated a discussion on this subject. He had hoe-drilled through stubble and bushes and thought the results at harvest time warranted the additional time and labor involved in keeping the hoes free from rubbish. Most members favored the hoe drill, provided the land was free from rubbish, but until the bushes were thinned out and a good stubble burn secured, the disc drill was thought to be preferable.

Cultivator v. Plough.—Discussion on the respective merits of these implements took place. This season the cultivator in the majority of cases had been quite unable to cope with the stubble on previously cropped land, thus rendering it practically useless. Up to that time no difference had been noticed in crops grown on land prepared by plough or cultivator. Members were of the opinion that the plough was the superior implement for this district.

Waikerie, June 7.

(Average annual rainfall, 9in.)

Present—Messrs. Blizard (chair), Wood, Burton, Burroughs, Jones, and Green (Hon. Sec.).

Peach Trees from Cuttings.—Mr. Burroughs reported that he had successfully grown peach trees from cuttings. Several members had seen the trees in question, and were astonished at the way in which they had rooted. They considered that if trees could be brought to bear fruit from such slips it would be a great saving of time and trouble; they intended to carefully watch results.

SOUTH AND HILLS DISTRICT.

Cherry Gardens, June 1.

(Average annual rainfall, 33in.)

Present—Messrs. C. Ricks (chair), Jacobs, Hicks, Lewis, Broadbent, Lewis, I. Ricks, Stone, Curnow (Hon. Sec.), and two visitors.

Pig-breeding.—Mr. G. Hicks introduced this subject. In his opinion the Berkshire-Tamworth cross was the most profitable beast to keep. He had a sow of this breed which had eight litters. The highest number at a litter was 18, and the lowest 8. The highest number reared at one time was 13. The progeny of this sow had always been first class and sold well, and one of the sows from her had two litters by the time she was 2½ years old. She was then sold in the market for £7 10s. Mr. R. Jacobs favored the pure-bred Berkshire as being best for the market. Mr. Broadbent considered that the Tamworth-Berkshire cross were good mothers, while Mr. Ricks favored the Berkshire-Essex cross. Mr. C. Lewis killed a sow at 27 weeks weighing 150lbs. This was a Berkshire crossed with common sow with a dash of the Essex. Mr. Broadbent killed a Berkshire-common sow cross at six months weighing 220lbs. Mr. Jos. Lewis favored the Poland China for the market.

Pig-feeding.—Mr. Broadbent read a paper on this subject to the following effect:—The first essential was to have dry sties. A sow with a litter should be fed three times a day with milk and bran. In the absence of milk, pollard and bran should be given. When the young pigs were able to eat they should be fed in a separate trough with crushed or soaked peas in milk or pollard. It paid to feed them well before weaning, as they did not then miss the milk so much when taken off the sow. To fatten pigs he recommended pollard mixed fairly thickly with crushed or soaked peas three times a day, just sufficient for a meal without any being left. He considered it best to keep store pigs on a piece of ground fenced with barbed wire or netting, provided with sties. Messrs. Ricks and Jacobs were not in favor of having any store pigs, but preferred to fatten them at once. The latter gentleman considered the weight of Mr. Broadbent's pig (220lbs.) to be excessive and unusual for a six months old beast. He agreed that it was right to feed three times a day, but thought the quantity a somewhat difficult matter to decide. If firm, sweet meat was needed, he favored field peas with a little pollard.

Clarendon, May 31.

(Average annual rainfall, $33\frac{1}{2}$in.)

Present—Messrs. H. Harper (chair), A., A. A., and E. Harper, Richards, J. and P. Piggott, Davidson, Sheidow, Williams, Burpee, Spencer, Morphett, Phelps (Hon. Sec.), and three visitors.

Lucerne Flea.—The Chairman reported that the green, or lucerne, flea was very prevalent this season in the early sown crops. Mr. Morphett suggested rolling, and the Hon. Sec. had turned the sheep on to the crop to trample it down.

Post Holes.—Mr. Harper reported that he had seen the tool for digging post holes. Mr. Piggott had seen it used satisfactorily on sandy land. Members were of opinion that it would not be any advantage in stiff and stony land.

Potatoes.—Mr. Piggott wished to know whether small or round sets would produce small potatoes. Members favored planting good-sized cut sets as producing good marketable potatoes.

Ensilage.—An extract from a Mount Pleasant report was read and discussed. Mr. A. A. Harper had made a small quantity of ensilage in a pit, which had turned out satisfactorily until the bottom was reached. In the absence of proper means of drainage this had been spoiled, and the cows would not touch it. He had also made stack ensilage, but that was a failure. Members were of opinion that to be successful with ensilage it was necessary to provide good pits and grow a crop for it, as good ensilage could not be made from rubbish.

Dingabledinga, May 29.

(Average annual rainfall, 30in.)

Present—Messrs. Felix De Caux (chair), A. and F. De Caux, Gill, McMurtie, Trimper, and Chenoweth (Hon. Sec.).

Peas.—Mr. McMurtrie read a paper on the cultivation of peas, to the following effect:—In this locality peas should be sown on the higher lands about the end of July, and on the low and wet places in September or the beginning of October. The ground should be prepared as for a hay crop; if the peas are to be gathered the land should be rolled before the plants are up. He had rolled when the plants were 3in. to 6in. in length without any apparent injury, but thought it better to roll earlier. He preferred Early Dun peas, though the Partridge pea was also good. Sufficient seed should be sown to secure a thick crop, as this will smother the weeds and give a better return. He had found S.A. super. give better results in this district than bone super. Peas were splendid feed for sheep or pigs, and it was not necessary to harvest more than required for seed and for winter feeding. When ripe the pigs or sheep can be turned into the field to gather the crop. In this way a lot of labor is saved and the land is enriched with the droppings. Not only did they get a good return from the crop, but the land was benefited. Wheat and oats do better after a crop of peas. In one paddock he sowed oats for hay in part and peas on the rest; the following season it was all in wheat, and they could see to the furrow where the peas had been. On well-prepared and well-manured land they should get 30bush. to 40bush. of peas per acre. At 20bush. per acre the crop paid, as five acres would fatten 20 pigs or 100 lambs at the least. This allowed $7\frac{1}{2}$lbs. of grain to make 1lb. of pork, or 5lbs. to make 1lb. increase in lambs. Peas would also be found valuable for poultry. The paper was well discussed. Mr. F. De Caux had tried feeding peas off with sheep, but it was not a success; he thought this might be due to lack of water. Pigs were very profitable, but he preferred to gather the peas and to feed the grain to them in the straw.

Forest Range, June 10.

(Average annual rainfall, 36in.)

Present—Messrs. F. Green (chair), A. Hand. J. Green, Vickers, Pollard, Hale, Mason, Tribe, Rowley, Monks (Hon. Sec.), and 20 visitors.

Annual Report.—The Hon. Sec.'s report showed that only six meetings had been held, with an average attendance of nine members. Three papers had been read, and the meetings generally had been instructive.

Pruning and Planting Fruit Trees.—Mr. George Quinn gave practical demonstrations in the pruning of fruit trees, and in the evening gave an address on the treatment of insect pests, &c. Discussion took place on bitter pit, the standard fruit-case, grafting pears on to quinces, &c. It was mentioned that Dunn's Seedling and Winter Majetin apples were apparently free from bitter pit disease. In reply to question *re* grafting pears, Mr. Quinn said that the Glou Morceau did well on the quince. The quince should be cut to about ground level and bark-grafted; working any height above ground was not satisfactory.

Golden Grove, June 3.

Present—Messrs. Maxwell (chair), Milne, Maughan, Angove, Ross, Tilley, Robertson, and Harper (Hon. Sec.).

Drain Pipes for Farm and Garden.—Mr. Maughan read a paper on the construction of cheap and effective drain pipes, and their importance under certain conditions, as follows:—" For several years I have found it absolutely necessary to drain my land in winter. Along the hillsides, and often on the tops of the rises, there are soaks or springs that rise late in May or early in June and do not dry up till November. The majority of these soaks cover about 40 square feet, and are very often right in the middle of an orchard. Should we have heavy October rains they do not dry up till December, when the weather is very hot. The ground then dries so quickly that it bakes, and the trees around have a very bad time. Last year around several of these soaks on my property some trees died outright, and the foliage of others was diseased. By putting in a drain I do not claim that the soaks will be stopped, but the drain will carry the water away about a foot below the surface and help to keep the surface in a firmer condition, making the ground more fertile. At present only water-grass grows on this ground, and that not until spring time. Should a spring of water be at the bottom of a hill within 30ft. or 40ft. of a creek, the trouble is not very great; but in the majority of cases they are much farther away. In my experience stone drains have not been satisfactory. If there are plenty of first class flat stones on a property close to where the drain is required it is not so bad, but even then the drain must be built with a flat, even bottom, or the first stick, or leaves, stinkwort, &c., that goes into it will block it. Also there is a chance of the side stones falling in in wet places, while rabbits and bandicoots always like a stone drain, and often make their nests there, resulting in a total obstruction with the first rains. It is then necessary to pull up the drain for some distance to find the cause of the block. This has been my experience with stone drains, which have always been built square. Four years ago I commenced to use earthenware pipes for drains, and have found them a great success. If they get blocked it is generally in a short length of pipe and is easily remedied, the reason being that they are round, and in the curve or centre there is always a strong current, which is not the case in a flat drain. In two different places in my garden the council in its wisdom has seen fit to turn in the storm waters off the adjoining road, and it has been necessary for me to put down two drains each over 100yds. long, with 6in. pipes. These pipes cost me 1s. 6d. each, or 9d. a foot, which makes the provision for carrying off the water an expensive business. Unfortunately the 6in. pipes are not large enough with such heavy rains as we had last May, so now I have to meet the expense of a larger pipe. The next size is a 9in. pipe, which costs 2s. 6d. a length or 1s. 3d. a foot. For some time I have had an idea that I could put down a half-round cement drain and cover it with cement slabs or stone far more cheaply than I could buy pipes; but in opening out a long drain in winter there is considerable risk of trouble from floodwaters, and in summer time it is impossible to work cement to its best use without keeping it damp. For these reasons I have tried to make a cheap cement pipe. The pipes I have brought here to-night have cost me a lot of thought to produce. Not the pipes themselves, but the moulds to make them in. Then again, in making it has been difficult to get them out of the mould before they set too hard or stick to it. It is well known that when mixing up cement if any is left on the tools for 24 hours it is a very difficult matter to get it off again. These moulds are made of plain galvanized sheet iron. The first is for a 9in. pipe, another for a 4in., and the third is a 4in. pipe mould with eight drain holes in the top. I hope to improve on these moulds, as they are not very modern. The cost of them for material only is 3s. 6d. for the sheet iron and 1s. 6d. for solder. This 9in. drain pipe, 2ft. long with collar, is made of three parts of sand with one of cement. The cost of the cement is 7d., and sand 1d. I mixed the sand and cement dry first, and then wet it and mixed it well, filled the mould, and let it stand till it commenced to set. Then the core was drawn out and the outside mould left for a couple of hours. The next thing was to slip off the rings and let the pipe stop till it was dry. The 4in. pipe is made on the same principle. The cost (foot lengths) being for three parts of sand to one of cement, 1½d; two parts sand and one of cement, 2d.; or one part sand and one of cement 2½d. These are three different samples, and can be made in wet weather when we cannot do outside work. They are only in the experimental stage, and all present are requested to give me the benefit of their criticism." Members all recognised the importance of the subject of draining in this district, and they thought it would receive more attention if the price of suitable drainpipes were not so prohibitive. They commended Mr. Maughan for the good spirit in which he had given them the result of his energy and ingenuity.

Gumeracha, May 3.

(Average annual rainfall, 33in.)

Present—Messrs. Randell (chair), Moore, Jamieson, Monfries, Porter, Hanna, Cornish, and Lee (Hon. Sec.).

Poultry and Egg-production.—A short paper was read by Mr. Monfries introducing this subject. He thought that too much attention was being paid to the lighter breeds of poultry for egg-production, and the question naturally arose as to what was to become of the table bird. At the present time there was a scarcity of good table birds in the local markets. In this district fowls would not lay nearly so well as in warmer parts of the State, but excellent table birds could be produced, and would prove to be more profitable than the lighter egg-laying strains. Some of the best birds for the district were Dorking, Buff and Black Orpington, and Wyandotte hens crossed with a Malay or Indian Game rooster, the former male bird for preference, as it produced a heavier and better-breasted fowl. Quite young roosters bred in this way had turned the scales at 9lbs. or 10lbs., live weight. Such birds sold at anything over 4d. per pound would pay to rear, but the majority of young fowls found in the district probably weighed but 3lbs. or 3½lbs., with little breast or quality about them. Birds of this description would not realise more than 10d. to 1s. apiece in the market. Turkeys could be payably raised provided the right kind were purchased to breed from. Good birds were essential for breeding, and the American Bronze were mentioned as the best suited for the district. Properly fed gobblers would weigh up to 30lbs. (live weight), and would bring 5d. to 8d. per pound. Several members spoke on the question, the general opinion being that the district was not suited to successful poultry-raising. The Plymouth Rock was mentioned as being a very hardy bird; the Partridge Cochin, and a Wyandotte cross also being spoken of as making good table birds. It was thought that geese and ducks would pay, and that it would pay to rear turkeys where they had a large run.

Hartley, June 3.

(Average annual rainfall, 16in.)

Present — Messrs. Wundersitz (chair), Stanton, Tydeman, Pacch, Pratt, and Bermingham (Hon. Sec.).

Floors for Outhouses.—A long discussion took place on this subject, and members considered that concrete floors were best. The proportions given were—five parts of gravel to one part of lime. When put down this must be well tamped to ensure success, and a good coating of hot tar when the concrete was thoroughly dry was strongly recommended. It was mentioned that if the gravel was taken from the local creek it should be spread out, and left for a time to allow the rain to wash out the magnesia.

Superphosphate.—Members could not understand why the bags of super. varied so much in weight. When two or three farmers got a truckload together it was a difficult matter to ensure each man receiving his due proportion when bags varied as much as 10lbs. in weight.

Longwood, May 1.

(Average annual rainfall, 37in.)

Present—Messrs. W. Nicholls (chair), J. Nicholls, Oinn, Coles, Vogel, Furniss, Roebuck, Hughes (Hon. Sec.), and one visitor.

Clovers.—Some discussion took place as to the respective values of Italian Crimson clover and "Cow Grass." Members were agreed that the latter gave the earlier cut in spring, but at the same time the "Cow Grass" was better liked by the cows.

Grafting.—This meeting was held at the homestead of Mr. Jno. Nicholls, who showed a system of grafting old trees which he had adopted with success. The tree is cut close to the ground, the grafts inserted and tied, and then an old tub or large tin with the bottom knocked out is placed over the stump and filled with earth. The graft is covered to a depth of about 1½in., which keeps it damp. The tin is removed at this season of the year in order that the bark may get tough before the hot weather sets in. In reply to question whether plums could be grafted on to cherry stocks, several thought they could not. Mr. Nicholls said he had grafted Japanese plums on to apricots in the way described. A paper was read by Mr. Nicholls on the management of the orchard.

Clubroot in Cabbages.—It was suggested that the growing of French or kidney beans in rotation would get rid of the disease causing clubroot, and one member undertook to test this.

Longwood, May 29.

(Average annual rainfall, 37in.)

Present—Messrs. W. Nicholls (chair), J. Nicholls, Vogel, Roebuck, Coles, Glyde, Oinn, and Hughes (Hon. Sec.).

Homestead Meeting.—This meeting was held at the homestead of Mr. W. Nicholls.

Potatoes.—A general discussion took place on the subject of potato-growing. Members thought that the varieties known as Warrior, Up-to-date, and Sensation, were identical, and agreed that this was the best potato to plant for the Christmas market. Bismarcks were said to deteriorate sooner than other varieties, and were best for dry land. The deterioration of these tubers was thought to be due to planting round sets. Mr. Vogel stated that in Germany they planted the same sort for as long a period as 16 years without the variety deteriorating. They saved the largest potatoes from the roots bearing the greatest numbers, and cut these for seed. Members said that half the cut sets rotted in the ground, and growers were therefore compelled to use round seed. It had been noticed that in the case of potato disease all the tubers on one root would be affected, whilst an adjoining plant would be quite free from it. This forced members to the conclusion that the seed was responsible for the disease rather than the soil. Mr. Roberts spoke well of Up-to-date seed which he procured from Piccadilly. He changed his seed after each second crop.

Bitter Pit.—Members had seen bitter pit in Stone Pippins, Dunn's Seedling, Rome Beauty, and London Pippins. Although these last were badly affected in some seasons, this year there had been exceptionally little bitter pit in this district.

Woolly Aphis.—Members were at a loss to know why this insect almost invariably appeared at any wounds made on apple trees.

Lyndoch, June 3.

(Average annual rainfall, 23in.)

Present—Messrs. Warren (chair), Klauber, Rushall, Burge, Lawrence, Denholm, Schrader, Hammatt, and Springbett (Hon. Sec.).

Arsenate of Lead.—It was decided that the question of asking the Government to undertake the supply and sale of arsenate of lead for spraying purposes of guaranteed strength be brought forward at next Congress.

Arbor Day.—This matter was discussed, and it was decided to arrange an arbor day on July 16th, in conjunction with the school authorities and the district council.

Mount Pleasant, June 11.

(Average annual rainfall, 27in.)

Present.—Messrs. Giles (chair), Royal, Thomson, Godfree, Miller, Hughes, and Vigar (Hon. Sec.).

Annual Report.—The Chairman reported on the work for the year. Only five meetings had been held, and the average attendance had been poor, viz., six. The meetings themselves had been interesting, but only one paper had been read.

Destruction of Foxes.—Further discussion on this subject took place. Mr. Godfree contended that all landowners should destroy foxes in self-defence—they should be treated as enemies, like rabbits. He did not think they should run to the Government for help in this matter. Mr. Giles pointed out that they could not look at rabbits and foxes from the same standpoint. The latter would travel such long distances that the individual landowner could not protect himself as he could with rabbits. Mr. Hughes quoted figures showing to what an enormous extent foxes had increased in Victoria, and urged the necessity for drastic action in dealing with them. Mr. Thomson would support a scalp tax, owing to the fact that the foxes were breeding in poor country and travelled long distances to secure their prey. Mr. P. Miller said that owing to the ravages of foxes he would not have more than 50 lambs from a flock of 150 breeding ewes.

Morphett Vale, June 15.

(Average annual rainfall, 22½in.)

Present—Messrs. Christie (chair), Booth, McLeod, Rosenberg, Perry, Sprigg, Pocock, and Anderson (Hon. Sec.).

Annual Report.—The Hon. Sec. submitted the report of the last year's work. During the year 11 meetings had been held, with an average attendance of about 7·6 members. Papers on "Winter Cultivation of land for Summer Crops," and "Growing Crops and Manures for Them," had been read.

Rolling Crops.—Mr. Rosenberg wished to know the best time to roll crops. Members considered that the best time was just when the plants were stooling. Mr. Sprigg asked whether the rolling benefited the crop or only leveled the land for harvesting operations. Members considered that in loose soil it tended to conserve moisture. All agreed that on land that was likely to set hard rolling did no good, but harrowing would be more beneficial. Mr. Sprigg harrowed part of his crop last year, which he considered re urned about 6cwts. of hay per acre more than the land not harrowed. Mr. Pocock also had good results from harrowing the growing crop.

Port Elliot, June 19.

(Average annual rainfall, 20½in.)

Present—Messrs. B. Welch (chair), Vince, Brown, Pannel, Gurr, Nosworthy, Green, H. Welch, W. E. and W. W. Hargreaves (Hon. Sec.).

Annual Report.—The Hon. Sec. reported that during the year eight meetings had been held, with an average attendance of seven. Among the subjects discussed, the following were mentioned as being some of the most important:—"Amending Bush Fires Act," "Are Geese Profitable?" "Pigs for Pork and Bacon," "Bloat or Hoven," "Strawberries," "Crushed *v.* Whole Oats for Horses," "Harrowing Growing Crops," "Wheat for Hay," "Destruction of Rabbits," "Farming," "Feeding and Sheltering Stock," "Nitro Bacterine," "Dry Molasses," "Grafting Fruit Trees," "Summer Pruning and Fungus Diseases," "Rhubarb," "Pruning Almonds." In addition to these, addresses were given at different times and many plants, fruits, &c., were tabled.

Irrigation.—Mr. J. Brown read a paper on this subject to the following effect:—"Irrigation is, I believe, destined to become one of the mainstays of Australia, and I hold this as the outcome of 25 years' practical experience, perhaps on a small scale, but large enough to get a good living and something more. I would advise any young man looking for a home to weigh carefully the possibilities of water for irrigation. If sufficient water can be found to irrigate three times a year, the land will be worth about ten times its value without irrigation. Some may say, 'Less the cost of utilising the water'; in some cases that may be right, such as making expensive dams, but even then irrigation is generally done by gravitation. If in a gully with land at £6 per acre, a dam can be made at a cost of £50 to water one acre, it will pay to make it; for, as far as I can ascertain, the present average price of irrigated land is about £100 per acre. If watering from a river for intense cultivation of any sort, gravitate, if it is possible; if not, the next best thing is to procure an oil engine. Windmills are unreliable, even with large tanks, which are costly; but with an oil engine and a fair supply of water a crop may be planted with prospects of a good return at a very small cost. Potatoes which I planted in November and dug in April, with practically no rain, were irrigated three times at a total cost of £2 per acre for kerosine. The result was 10 tons per acre of first class quality tubers, without manure. If not irrigated, I think the result would have been nil, as far as marketable potatoes were concerned. Even in Hindmarsh Valley it is not always safe to grow potatoes without first making provision for irrigating them, as otherwise we can neither get quantity nor quality to command good prices. Potato-growing with irrigation will be a profitable industry in the future, as at the present time suitable land with an applied water supply is rather scarce. Some portions of the reclaimed swamps on the Murray are worthy of attention. Close to the river is the best part, and other parts are good if not too salt; but potatoes will stand some salt if irrigated with fresh water. If it were necessary to excavate a drain, I think a 20-acre block in full working condition ought to pay for one round it, and keep an engine fairly well employed in pumping water on to it; while, if the necessity arose, the engine could easily be employed to pump water off the land."

Early Green Feed.—Members considered that for that district Cape barley, oats, and rye were good, the last-named being best if fed when young, and especially for sheep. It was pointed out that the question as to what to plant for this purpose largely depended upon soil and climatic conditions.

Renmark Fruit.—The Hon. Sec. reported on his trip to Renmark, and tabled samples of dried fruit and gypsum.

Strathalbyn, June 14.

(Average annual rainfall, 19½in.)

Present—Messrs. Fischer (chair), Wand, M. Rankine, Nicholls, Collett, Humphrey, Dunford, and J. R. Rankine (Hon. Sec.).

Sowing and Harvesting.—Mr. M. Rankine read a paper on this subject, as follows:—"There are no hard and fast rules to be followed in putting in the crop. It is no use to say—Start seeding at such and such a time, what kinds of wheat, and how much per acre, plough so many inches deep, whether to harrow before drilling or after, or not at all, or what brand of manure and how much per acre. In this district in most cases it is better to do nothing in the way of actual seeding until the rain comes. The fallow may be worked up, and have it all ready for the actual sowing of the grain, but there is always the danger of weeds—dandelions especially—if put in before the rain comes. My idea is to get everything ready, and be prepared to start as soon as the seeds of the weeds have germinated, and to sow the land that is intended to be cut for hay first, so that the hay crop may be cut, carted, and stacked before the barley and early wheats are ready for reaping. As to the quantity to sow to the acre, a lot depends on the different kinds of wheat and the land to be sown, as some kinds stool very much better than others. For a hay crop I prefer 1bush. to 1¼bush. to the acre, and for variety, King's Early. Some users object to this wheat owing to the beard, but I have been using it almost exclusively for many years, and have not found a single instance of sore mouths in the horses. For many years I have fed the sheaves to the horses, and there is absolutely no waste; which cannot be said of some of the varieties used for hay. I usually put in a few acres of barley for pig-feeding, and this can generally be got off before the wheat crop is ready for stripping. Also a few acres of oats, and these are also used on the farm. The straw, if cut and stacked directly after stripping, can be used for feeding loose horses and the cattle during the winter. There are so many different kinds of wheat now that their name seems to be legion. The question is which suits your farm, or, rather, the different parts of your farm, the best? I prefer King's Early for sandy land, as it is a quick grower and minimises the risk of high wind blowing the sand; but never sow it on hard land, as it is very liable to go down. Federation seems to suit most districts, but personally so far I have had better results from Yandilla King. Bluey (Dart's Imperial) I consider one of the best wheats, but it is very liable to rust. Whatever the variety of seeds used see that they are the best, true to name, and clean. I prefer to plough 4in. to 6in. deep, but it all depends on the class of soil. As to whether you harrow before or after drilling, or both before and after, or not at all, depends entirely on circumstances, and the farmer must be guided by his own judgment. As a general thing I use the lower grade of mineral super., and from 80lbs. to 90lbs. to the acre. I think everyone believes in pickling wheat as a preventive from smut. I have had no experience with anything but bluestone, with which I am satisfied; but use a very weak solution, viz., at the rate of about 1lb. to 25bush. I roll all my crop after it has well covered the ground, and believe it to be beneficial, but have had very little experience of harrowing after the crop is up. If it is intended to feed the hay long, cut it when the grain is just forming, but if intended for chaffing for your own use, a little later; while if for sale, it should be cut later still, as then you get the most weight. Have the hay stooked directly after the binder, as the sheaves will set better and be enabled to withstand any wind. Cart as soon as ready. To test when ready, I usually take a few straws from the centre of an inside sheaf, and if, on bending short, the knots break, it is ready for carting. Stack in the most approved way, the sides as upright as possible and the centre well filled. If any of the crop is to be cut for threshing, the binder can be started a week or 10 days before it is ready for the stripper. But as soon as all the sap is out of the straw the wheat is ready to reap, and then the farmer can get to work with the stripper or harvester, and work early and late, for the sooner it is off the better. I prefer to get the wheat into the barn as soon as it is in the bags, and not leave it till harvesting is over, to be in danger of storms, fire, and birds." Some members were surprised to learn that Mr. Rankine pickled with such a weak solution of bluestone, the pickle generally used being 1lb. bluestone to from 8bush. to 12bush. The Hon. Sec. kept the liquid from year to year, adding to it as necessary. He never had any fear of smut. Members wished to know if the solution would get stronger when kept in this way. Different methods of pickling were discussed at length. [The bluestone (sulphate of copper) solution if kept for any length of time undergoes certain changes which will change the form of the copper compound. What effect it would have on it as a fungicide is uncertain.—Ed.]

Uraidla and Summertown, June 7.

(Average annual rainfall, 42½in.)

Present—Messrs. R. Cobbledick (chair), F. Cobbledick, Percival, Kessell, Hart, Richardson, Dyer, Rowe, Hoffmann, Day, Harfield, and Snell (Hon. Sec.).

Potato Disease.—Mr. W. Dyer referred to the disease prevalent among potatoes. He considered it to be a different trouble from that already discussed by the Branch. Specimens were forwarded to the Department of Agriculture for an opinion as to cause.

Manuring.—A paper was read by Mr. F. Cobbledick as follows:—"Farmyard manure is valuable, and much of the land requires heavy dressing on account of the heaviness and closeness of the soil. If the hills had the loose, deep soil of the Mount Gambier country, with the scientific way potatoes are grown here, immense crops could be raised. The amount of manure put on one acre in many places would do for two if the land were properly drained, and we need to turn our attention to this matter. Manure-carting from the city entails considerable outlay, and is a big strain on our horseflesh. Many gardens could be worked so as to do without this manure-carting. One way would be to grow less vegetables and to turn our attention more to fowls, pigs, and cows. We would not have to work so hard and would have less trouble in getting buyers for our produce. Mangolds, peas, &c., could be grown as food for the pigs and cows, and if these were properly looked after manure enough could be got on the place for the lesser quantity of land planted with vegetables. Proper sheds should be constructed, and suitable sties to save all the manure, solid and liquid. Pollard and corn would have to be bought, but the outlay would pay better than the same amount spent in bonedust. Potato tops and weeds could be thrown to the pigs, and when well trampled down, mixed with fowl and other manure. This, with a few buckets of lime thrown over it, would be excellent for the garden." In the discussion which followed Mr. Percival considered that this district should keep a bacon factory going, as the pigs could be fed on produce not sent to the market. Mr. T. Day thought it a mistake for every newcomer to this district to take up gardening only. Some should go on the lines indicated in the paper. Mr. Rowe said the corporation of a large city like Adelaide should make hundreds of pounds a year out of the product of scavenging. Instead of all going into refuse destructors it should be properly treated to make compost, which would be readily purchased by market gardeners.

SOUTH-EAST DISTRICT.

Mount Gambier, June 12.

(Average annual rainfall, 31½in.)

Present—Messrs. Sassanowsky (chair), Edwards, Ruwoldt, Mitchell, Wedd, Smith, Cobbledick, Kilsby, Major, Holloway, Sutton, Pick, Buck, Kennedy, Niquet, Englebrecht, G. and D. Collins (Hon. Sec.).

Bees and Clover.—Mr. D. McKay, of Penola, wrote calling attention to the fact that though both the red and white clover grew luxuriantly about Mount Gambier and Mount Schanck some 30 years ago, of late they had practically disappeared. He believed this to be due to lack of insects able to carry the pollen from one flower to another. In New Zealand the growers of red clover found that the seed would not form, and the bumble bee was introduced from Europe with most satisfactory results. He suggested that the Branch should endeavor to introduce this bee to Mount Gambier. Considerable discussion ensued, members being agreed that through some cause these clovers did not flourish as they used to. Some members thought this might be due to lack of bees, while others attributed it to dry spring weather, clover sickness, &c. It was mentioned that when clover seed was sown they could not get such vigorous growth as in former years, and this suggested some other cause than mentioned by Mr. McKay. One or two members attributed the failure of clover to continuous grazing, which resulted in the best and most nourishing feed being eaten out.

Annual Report.—The Chairman and Hon. Sec. reviewed the operations of the past year. The meetings had been well attended, the discussions had been interesting, and generally the Branch had well maintained the interest in the work. Several papers had been read, and arrangements had been made with the Agricultural Department for extensive experimental work with potatoes. The Chairman, on behalf of the members, presented the Hon. Sec. with a handsome hanging lamp, in recognition of his services during the past six years.

Naracoorte, June 12.

(Average annual rainfall, 22in.)

Present—Messrs. Coe (chair), Forster, Williams, Duffield, Caldwell, Wright, and Schinckel (Hon. Sec.).

Wattle-growing.—The Chairman introduced this subject. He wished to point out that they had a large quantity of fern country in the district which was suitable for growing wattles. The valueless nature of this land had been pointed out by various people, but it deserved a better trial. His experience went to show that this kind of country was of little use for wheat or barley, but he had a good crop of peas on it and also a fair crop of potatoes. He felt sure there was a very good future before this country if it were planted with wattles. He had planted about eight acres of such country about five years ago, and though the rabbits had kept them pretty well eaten down, he found, on going round the plantation that week, a lot of them were 7ft. or more in height. Although many of them had been eaten off close to the ground and some were only just coming up, all were looking healthy. These were planted by harrowing the seed into the sand after a fire had cleared the ferns and rubbish away. A portion of this plantation (two acres) was well ploughed and the seed, previously soaked in almost boiling water, was drilled in, with the result that the trees were all about the same height and were growing well. Many thousands of acres of this land was valued by the Land Board at less than 10s. an acre, and if used for wattle-growing he felt sure would return a good steady income without a great deal of work ; and the land would increase in value. Young wattles were sprouting up like weeds all over the hospital grounds, and there were thousands of acres of this kind of land in the district. Mr. L. Wright agreed as to the large quantity of land suitable for this industry. According to a wattle-grower between Robe and Kingston there were thousands of acres of poor sandy country in that district which would return from £8 to £10 an acre if planted with wattles. He considered that the best way of planting was to run a plough furrow and drop the seed into it. They used to think it necessary to heat or scald the seed, but now found the best trees came from seed not treated in this way, although it took longer to germinate. They also ploughed fire-breaks at intervals. Trees should be planted systematically, and be allowed a fair amount of room. Mr. Forster had boiled some seed, presumably too much, as it did not come up. The impression was general that the seed should be heated in some way, and it was well known that in wattle country young plants sprang up luxuriantly after a fire had passed over it. Mr. Schinckel found that wattles grew well in sand ridges ; they were useful in preventing sand drifts.

Foxes.—Mr. S. H. Schinckel stated that he had poisoned 11 more foxes since the six reported at the last meeting.

Penola, June 12.

(Average annual rainfall, 26½in.)

Present—Messrs. Williams (chair), McKay, Pinches, Ockley, Richardson, Darwent, Ricketts, Warner, and Adamson (Hon. Sec.).

Annual Report.—The Hon. Sec. reported that 12 meetings had been held, with an average attendance of eight members. Papers on the following subjects had been read and discussed :—" Fallowing," " Pruning," " Preparing Small Wool Clips," " Best Machines for Harvesting," " Wheat-growing, and Best Varieties for District," " Sheep on the Farm, and Best Breeds to Keep," and many interesting discussions on various subjects had taken place. The question of " Forestry " had given the Branch much concern, and the Conservator was doing all in his power to help them. The district was passing from a large pastoral to an agricultural and mixed farming one. The value of this Branch of the Agricultural Bureau to the district had increased as each additional year of its existence went by, and it was now about 20 years since its establishment. The public were admitted to all meetings of the Branches, and could participate in the diffusion of knowledge which was continually going on.

Disappearance of Clover in South-East.—Mr. McKay commented upon the disappearance of both red and white clover, which at one time had grown so luxuriantly in the South-East. It was incapable of self-fertilisation, and it was necessary to introduce some agent to carry on the fertilisation if it was to flourish. In New Zealand the bumble bee had been introduced for this purpose with satisfactory results. Mr. McKay had written the Mount Gambier Branch in reference to this, as the members there intended to discuss the matter early.

Veterinary Surgeon.—It was resolved to ask the Mount Gambier Branch to co-operate with this Branch in taking steps to secure periodical visits being paid to this district by a Government veterinary surgeon to inquire into diseases of and attend to sick stock.

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The "Journal of Agriculture" has a circulation of 5,300 Copies monthly amongst the Cultivators of the Soil in South Australia, and consequently is a valuable medium for advertising Farm and Orchard Supplies and Requisites.

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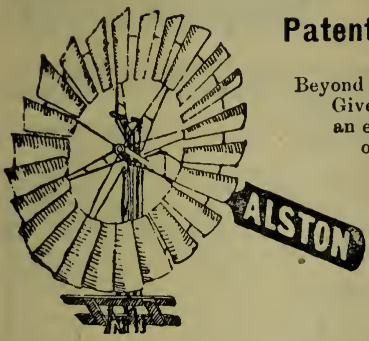

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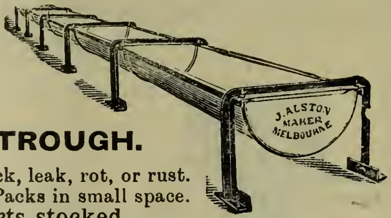

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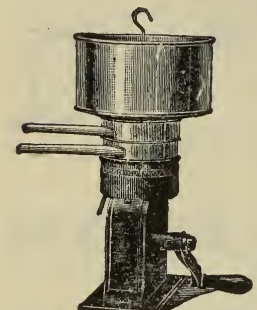

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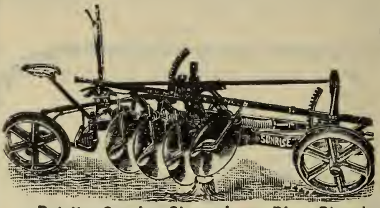

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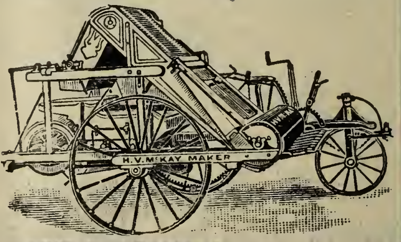

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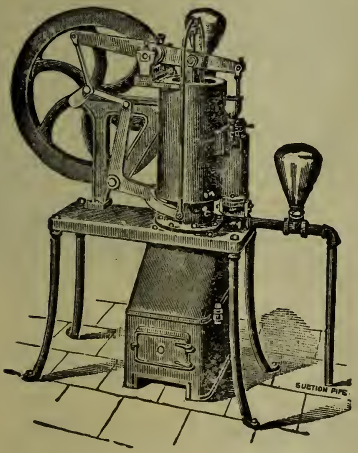

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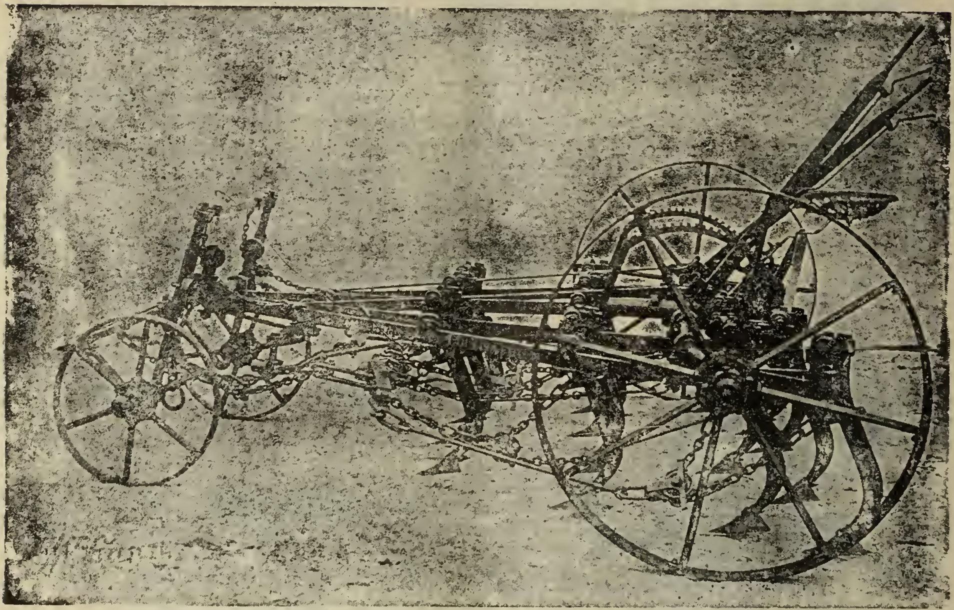
J. G. TRAEGER, Proprietor.



NOTE THIS.—The "Giant" Cultivator has Patent Adjustable Tynes which can be shifted (so as to work correctly) if injured, and not leave a BONE in your Cultivating. No Patches Missed.

ALSO—All Tynes Swing on Pivots, and the Draught is directly on the Tyne, so that there is no fear of them sticking when pushed back, and is a Free Jumper, jumping over anything in moderation, and have two equalizers, so that each half of the Tynes works independently, viz., the Draught thus giving it more relief than any other device.

Maker of Patent "Giant" Stump-jump Cultivator.

Acknowledged by hundreds to be the most up-to-date Implement on the market.

Made in 9, 11, 13, 15, and 17 Tynes.

Made of Best Steel throughout. Very Light of Draught.

Scores of Testimonials from Farmers who have used them. Pronounced by many to be the best Implement they have ever used. Proof of its ability is the wonderful increase in the output each year. This Implement is known all over the Commonwealth as a real **"CLINKER."**

A Few Testimonials.

[Copy from L. O'LOUGHLIN, Esq., M.P., who purchased four Cultivators ("Giant Pattern) last season.]

Your Cultivators gave every satisfaction.—Yours sincerely, L. O'LOUGHLIN.

[Copy of Letter from D. FRENCH.]

I have finished Cultivating my Fallow with the New "Giant" Cultivator I got from you this season, and am perfectly satisfied with it. As I have had 25 years' experience amongst Stump-jump Implements, I think your "Giant" Cultivator one of the best I ever worked, both for lightness of draught and strength. I can do fifteen acres a day without hurting the horses, and it will face anything in reason you like to put it to, and if your Ploughs are as good as your Cultivators, I mean to have one later on. Yours faithfully, D. FRENCH.

To Mr. J. G. Traeger.—Dear Sir.—The 15-Tyne "Giant" Cultivator which I purchased from you has given every satisfaction, working all kinds of ground thoroughly. It has worked two seasons, and done about 1,000 acres. Yours truly, J. FORREST.

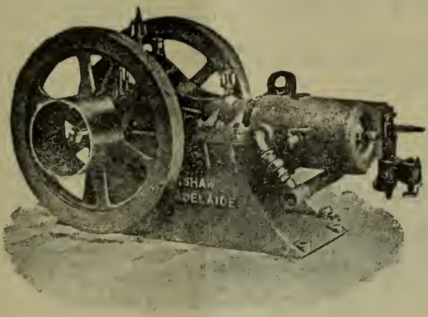
If you require a Tip-Top S.J. CULTIVATOR, don't fail to let me know.
Price-lists, etc., on application. Terms can be arranged.

NOTE THE ADDRESS—

J. G. TRAEGER, Hamley Bridge, S.A.

The Farmers' Engine.

The "BAGSHAW" Petrol Engine has been specially designed to suit the requirements of S.A. Farmers.



It will drive a No. 4 "BAGSHAW" Cutter, and cut 20 to 30 cwt. per hour; also Winnower, Saw, Grinder, Sheep Shears, Pump, etc.

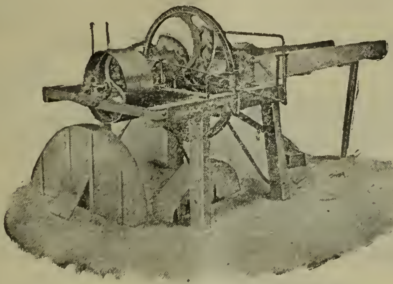
Don't Buy an Engine before seeing Bagshaw's Booklet. Free for the asking.

GENUINE

"Bagshaw" Chaffcutters.

The Outcome of Half a Century's Experience in Chaffcutter Manufacture.

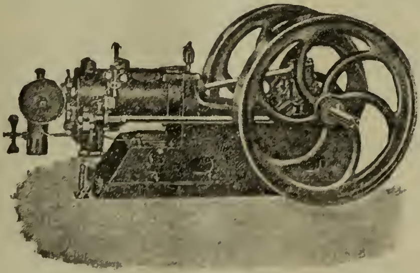
Over 90 per cent. of the Chaff cut in S. A. is cut by "BAGSHAW" CUTTERS. The Bagshaw guarantee stands behind every Machine turned out.



These Machines can be fitted with Elevators of any kind, Screens, Baggers, etc., and are made Portable, Semi-portable, or Combined with other Machines. Send for a Free Catalogue.

The "Allan" Oil Engine.

Twelve years in use, and not a single Engine removed for being unequal to guarantee, or unfit for the work undertaken. A unique record.



Water Jacket cleaned without removing any working parts of Engine. Special Safety Oil-feed, giving reduced consumption.

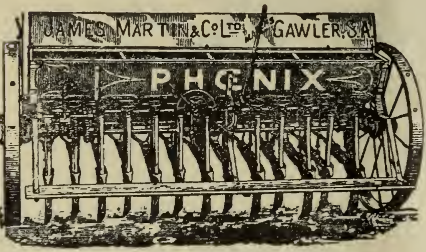
Don't Buy another Engine and afterwards wish you had bought an "Allan." See the "Allan" before buying. The more thorough the comparison, the better chance we have of selling you.

J. S. BAGSHAW & SONS, LIMITED,
ELIZABETH STREET, ADELAIDE

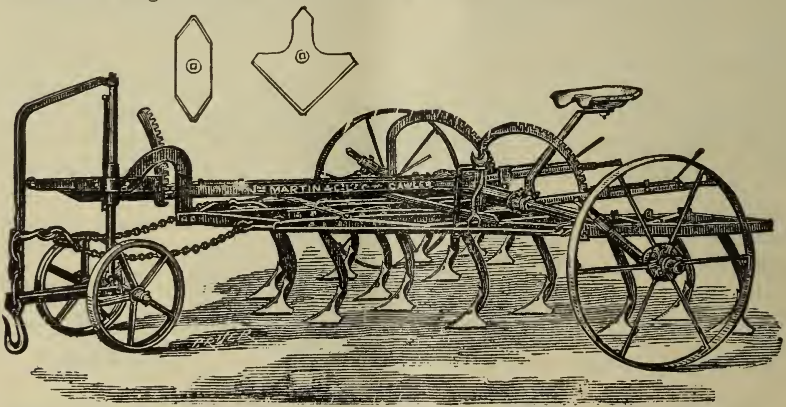
THE GAWLER Implement Manufacturing Company, Limited.

Agricultural Engineers,

Registered Office - - GAWLER, SOUTH AUSTRALIA.


JAMES MARTIN & Co LTD GAWLER S.A.
PHŒNIX

The above Company having purchased from the Liquidator the Agricultural part of the extensive business of James Martin & Co., Ltd., including the Premises, Plant, and Patterns, together with their large and assorted Stock of Steel and Well-Seasoned Timber, Felloes, Spokes, Naves, etc., used in the manufacture of Agricultural Machinery, have pleasure in notifying the numerous Customers of the late firm that they are prepared to supply all classes of Agricultural Goods at Reasonable Rates.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Harvesters,
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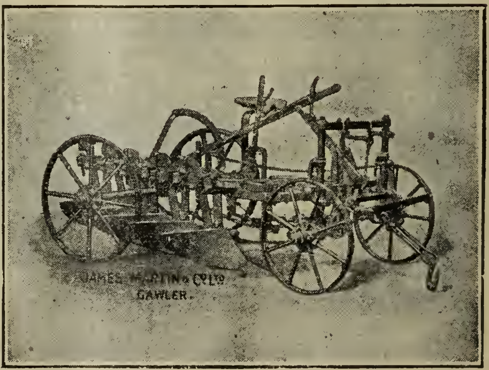
Winnowers,
Wagons,
Trollys, Drills,
Ploughs,
Cultivators.
Chaffcutters,
Horseworks.

And other Goods, including Shares of every description and Fittings, etc.

Plough Cultivator Shares a Specialty.



WRITE FOR PARTICULARS AND PRICES.

JAMES FERGUSSON,

Late Director J. Martin & Co., Ltd., MANAGER AND SECRETARY.

Malthoid

ROOFING.

WATERPROOF
AND
WEATHERPROOF.
WILL NOT DRY OUT
OR ROT.

Made from a PURE MINERAL which the Manufacturers have been using for over 25 Years with very satisfactory results.

MALTHOID HAS BEEN USED EXTENSIVELY IN AUSTRALIA.

— Some New Buildings Roofed with it are —

REGISTER BUILDING, ADELAIDE; NEW RAILWAY STATION, MELBOURNE; COMMERCIAL TRAVELLERS' CLUB, SYDNEY, and many others.

MALTHOID FLOORCLOTH is Unequalled for Covering Earth, Wood, or Cement Floors. **Outlasts Linoleum.**

— Write us at once for full particulars —

Norman & Co., BANK STREET,
ADELAIDE.

Metters' All-steel Wind Motors.

Have proved without a doubt they are cheaper, stronger, and more serviceable than any other.

Write for
PRICED CATALOGUE
Relating to all Irrigation
Work to

METTERS LIMITED,
142, Rundle St.,
ADELAIDE.
Also Sydney and Perth.

TOP TRADE MARK **BRAND**

MINERAL SUPER **WHEAT MANURE**
GUANO SUPER **BONE SUPER**
S. A. SUPER **GRASS MANURE**

All free-running and give good results.

ADELAIDE CHEMICAL AND FERTILIZER CO., LIMITED.

R. BURNS CUMING, Managing Director,
Currie Street.

LINKE, NOACK & CO., LTD.,

OF FREELING and MOCULTA, S.A.
SHOWROOMS, 103, CURRIE STREET, ADELAIDE.
(Adelaide Manager, THEO. MARKS.)
Telephone No. 2362. Cable Address: "Linoak," Adelaide.

Implement Manufacturers, Machinists, Agricultural Engineers, Merchants, etc.

Sole Agents for
D. & W. Gibbs Ltd., London, Famous Sheep Dip, Fluid, and Powder.
" " " Concentrated Carbolated Creosote Disinfectant.
John Holmes & Co. Ltd., Indentors & Wholesale Merchants, Wellington, N.Z., and London.

BROKERS for Grain, Fodder, Firewood, and all Agricultural Products.

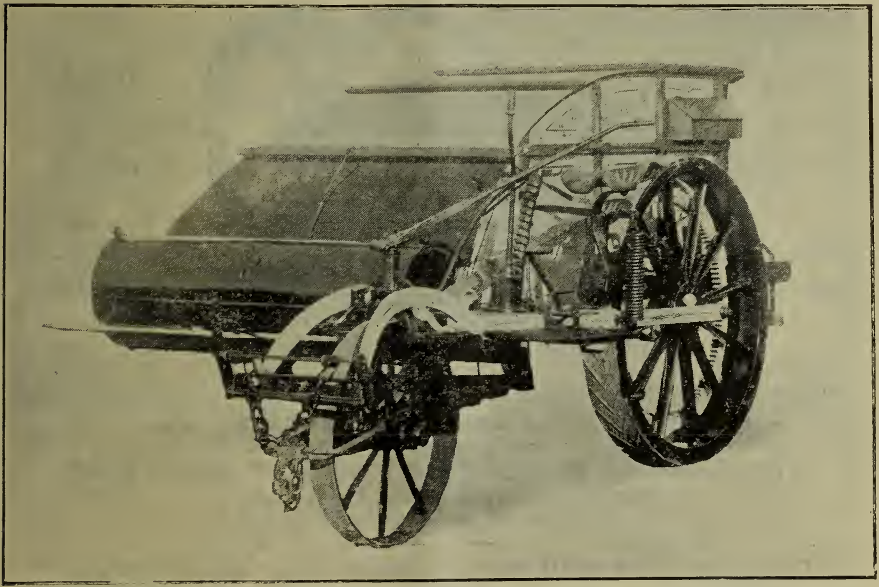
WE SUPPLY all Requisites for Station, Farm, Garden, and House at the lowest possible prices.

OUR FACTORY is equipped with all the latest contrivances for turning out speedily "Linoak" Disc Plows, "Linoak" Disc Cultivators, Ordinary S.J. Plows, S.J. Paring Plows, Patent Cultivators, Patent Duplex S.J. Steel Harrows, Steel Scoops, "Central" Strippers (both Damp Weather and Ordinary), English Wagons, German Wagons, Spring Vans, Hay Trollies, Ordinary Trollies, Vehicles of all descriptions.

Shearer's Strippers

Have many useful innovations, which have been well tested with universal satisfaction to all who have used them. These Machines are made in two types, to take 5ft. and 6ft. respectively, and both are fitted with a Patent Rock Draught Attachment, and a Patent Device by which the wheat or other grain is loaded on the near side and the chaff on the off side. This leaves the weight of the load on the near (driving) wheel, directly behind the horses, rendering these Machines the Lightest in Draught, and also, owing to the extra weight on the driving wheel, the Most Efficient in Thrashing.

☞ **They strip cleanest. They are lightest in draught. They do not lose grain.**
☞ **They are built of the best materials. They want little or no repairs.**
☞ **They last longest. They are made strong to stand rough, stumpy ground.**
☞ **No Machine equals them in durability, lightness of draught, and efficiency of work.**



SHEARER'S TWO-PART COMB AND BEATER STRIPPER.

Takes 6ft. of Crop, and does its work in every particular in a most effective manner, giving satisfaction to all who have used this Machine. The 5ft. Machine does not have centre bearing in Beaters.

The new Patent Damp-Weather Thrasher fitted to our Machines is a great improvement on other makes. The Spiral Spiked Roller revolves in the same direction as the grain as it leaves the Beaters, and therefore does not knock the grain back into the Beaters as in some of the other Machines.

The Damp-Weather Appliance can be easily thrown out of gear while Machine is in motion, and is so constructed that should a stick or other foreign substance pass through the Beaters the Damp Weather is self-releasing, and allows the obstacle to pass through without damage to the Machine.

The Belts are so arranged that they can be worked very loose, and consequently the Machine runs extremely light. Stripper Castings are all lettered and numbered, and duplicate parts can be obtained at any time. Strippers are built at our Mannum Factory.

TESTIMONIALS.

"Palmer. Messrs. J. & D. Shearer, Mannum. Dear Sirs.—I have used the Two-Part Comb and Beater Stripper for two harvests, and am in every particular satisfied with it. My land is very sandy; I am, therefore, placed in a good position to judge its lightness of draught, and find it no heavier than an ordinary 4ft. 6in. Machine of pony build. This 6ft Machine goes straight through the sand, and does its work well. It is well worth the money, and I can recommend this class of Machine to farmers without hesitation

Yours faithfully, H STEICKE."

"Yarrock, *via* Kaniva, Victoria. Messrs. J. & D. Shearer, Mannum. Gentlemen.—The 5ft. Damp-Weather Stripper I purchased from you last season gives me satisfaction. It does good work, is light in draught, and draws straight after the horses

Yours truly, W. C. HOBBS."

We do not ask you to buy a **SHEARER STRIPPER** because there are no other kinds to spend your money for. *We do ask you to buy them* because they combine *all the Latest Improvements in Material and Construction,* which no discriminating buyer can afford to disregard.

CLUTTERBUCK BROS.

Are Sole Agents in South Australia for

The BLACKSTONE OIL-ENGINE

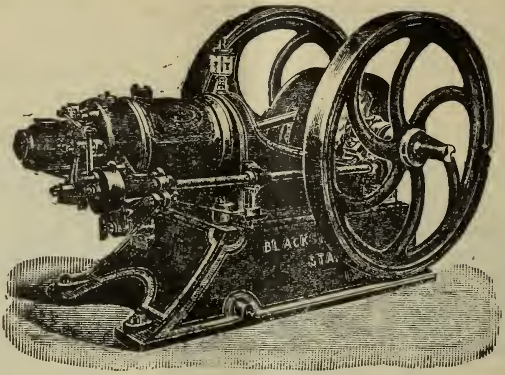
which has successfully solved the problem of a **cheap, simple, and efficient** motive-power, and embodies **the Latest Improvements in Oil-engines.**

Many hundreds in use in South Australia **on farms, in chaff-mills, shearing-sheds, and all places where a cheap and effective driving-power is required.**

Simple.

Economical.

No lamp needed when working.



Efficient.

Reliable.

Stationary and Portable.

At the latest Engine Trials, held under the auspices of The Highland and Agricultural Society of Scotland, **The Blackstone gave the best results.**

The Premier Gas-engine and The Mond and Mersey Producer Gas Coy.,

Sizes from 25 to 12,000 b.h.p.

Burgon and Ball Sheep Shearing Machinery.

Send particulars of your shed measurements, and we will quote you for a complete plant of the best gear on the market.

J. H. Young & Co., Ltd., have over 2,000 stands of this gear in use.

The Massey-Harris

British-built Farm Implements. World-famous on their merits.

The Massey-Harris **Binder, Harvester, Drill, Mowers, Rakes, Cultivators, Plows, and all kinds of Farming Implements.**

The Olds Gasoline Engine.

Has been in successful operation for 30 years. It is up-to-date. Represents the maximum of efficiency with the minimum of trouble.

The Triumph Plows and Cultivators.

Artesian-boring.

We undertake contracts **to bore for water to any depth.** Have complete Steam, Oil, and Hand-boring Plants, and keep an efficient Staff of Experts for this work.

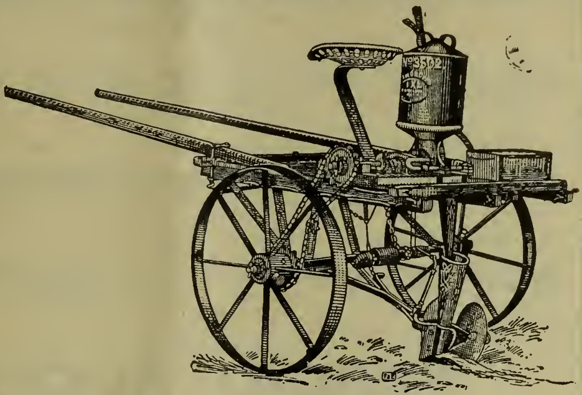
Full particulars on application:

CLUTTERBUCK BROS., **HINDLEY STREET,**
ADELAIDE.

Express Fire Fighters.

The Very Latest. Nothing nearly so good. 200-Gallon Flat Tank, four wheels and pole for two horses. Also single-horse Fire Fighters on two or four wheels.

Bosker Fumigators
Carbon Fumigators
Water Carts
Slop Carts
Troughing
Lamb-tail Searing Irons
Transports for Oil Engines, etc.



The Great Champion

I.X.L.

Poison Cart.

Over 5,000 in Use.
1,000 in South Australia

Buggy and Sulky Wheels, fitted with Patent Adjustable Channel Steel Tyres.
A Marvellous Invention.

ELDER, SMITH & CO., LTD.,
Sole Agents for South Australia.

GEO. E. FORTESCUE & SONS, Manufacturers, Arncliffe, Sydney.

DUNLOP RUBBER GOODS

FOR

THE FARMER.

Seed Drill Tubes
Rubber Delivery Hose
Balata and Rubber Belting
Steam Packings of all descriptions
The Dunlop Bushman's Cycle Tyre
for rough roads.

If unable to procure the above from your Ironmonger or Storekeeper, write direct to

The DUNLOP RUBBER CO.,
92, Pirie Street. Adelaide.

SEASONABLE GOODS.

BO-PEEP SHEEP-BRANDING MACHINE

A Simple and Efficient Machine for Branding Sheep. It is Light and Handy, and Brands 300 to 500 Sheep each filling.

BO-PEEP SHEEP-BRANDING OIL.

There is no better Oil in the Australian Market. We stock Red, Blue, Black, in One-gallon Tins and Five-gallon Drums.

BO-PEEP (5-PLY PATENT TWIST) SEWING TWINE.

A Reliable Bag Twine, and we confidently recommend it.

PAROID ROOFING.

For covering Roofs, Floors, and Walls.

THE BEST ROOFING = FELT MADE.

We stock 1-ply and 2-ply, in Rolls of 216 square feet. It makes a Building Warmer in Winter and Cooler in Summer than other forms of Roofing. The only Roofing supplied with Rust-retarding Caps. With each Roll is supplied Cement, Rust-proof Caps and Nails, and instructions for applying. Send for Sample and our Free Book of Plans

OLSINA COLD-WATER PAINT.

A Non-poisonous, Washable, Water Paint. The Best Cold-Water Paint made. Cheaper and Better than Wallpapers. A 7-lb. Tin (Price 3s. 9d. each) will cover 50 square yards of Plaster. A SPLENDID HOUSE DECORATOR.

WE ALSO STOCK

SHEEP TROUGHING.
GALVANIZED IRON.
IRON POSTS.
WIRE NETTING.
SQUARE IRON TANKS.
FENCING WIRE.
CEMENT. TAR.
BINDER TWINE, &c.

ALL AT LOWEST PRICES.

CROOKS & BROOKER,

FARM AND STATION SUPPLIERS,
ADELAIDE AND PORT ADELAIDE.

CROWN LANDS.

MOUNT SCHANK ESTATE.

HUNDRED OF KONGORONG, SOUTH-EAST.

Repurchased Lands in this Estate will probably be gazetted Open to Application about September next, for allotment under Closer Settlement Agreements, with covenant to purchase.

Full particulars will be published in the *Government Gazette,* and will also be obtainable, with Plans, from the Surveyor-General.

LESSEES' INTEREST IN LEASES AND AGREEMENTS AND TOWN ALLOTMENTS.

The Lessees' interest in Homestead Lease 4243 (Section 377, Hundred of Adelaide), Forest Lease 511 (Block 2s, Hundred of Hindmarsh), Homestead Agreement 171 (Section 411, Hundred of Yongala), and Agreements to Purchase 5448 (Section 163, Hundred of Bonney), and 6179 (Section 91, Hundred of Cotton) ; also Allotments in the Towns of Bligh, Clayton, Curramulka, Hynam East, Keith, Kybybolite, Lucindale, Napperby, Naracoorte South, Parrakie, Peake, Penong, Rendelsham, Rose Town, Stansbury, Talia, and Tennyson will probably be offered for Sale by Public Auction at the Land Office, Adelaide, at an early date.

Full particulars will be published in the *Government Gazette,* and will also be obtainable, with Plans, from the Surveyor-General.

OFFICIAL LIST OF LANDS OPEN.

The attention of intending Applicants for land is directed to the Official List of Lands Open, which may be seen at the principal Post Offices, and copies obtained at the Surveyor-General's Office. The List shows the Areas, Localities, Prices, &c., of the Sections available, and the conditions under which they may be applied for.

E. H. COOMBE,

Commissioner of Crown Lands.

THE MORGAN PATENT

"SIMPLEX" PORTABLE BUILDINGS

MANUFACTURED SOLELY BY THE

LION TIMBER MILLS

(RICHARD HONEY).

Suitable for Mining, Engineering, Station, and Farm Buildings, and Domestic uses generally. These Buildings have no equal for simplicity of Erection and Portability.

Just think of one room being erected by one man in one hour; and four rooms in one day; and being occupied on the day of delivery. Can be put up and taken down like a bedstead.

No skilled Labour necessary.

NO MORTICES. NO TENONS. NO NAILS.

Only Coach Screws and Interlocking Joints employed.

Printed Drawings and Instructions furnished for guidance in erection.

Roofs, Walls, Floors, Doors, and Windows supplied ready painted in three-feet (3 ft.) Panels. Doors and Windows already hung to Frames, and Fitted with Suitable Hardware.

It is the only so-called portable Building that is actually portable. Can be taken down for removal in a few minutes.

The above features place the "Simplex Buildings" ahead of all others for Fishermen's, Trappers', Hunters', Shearers', and Shepherds' Huts, and for Churches, Chapels, Assembly Halls, Summer Resorts, Bunk Houses, Small Stores, Amateur Workshops, Playhouses, etc., etc.

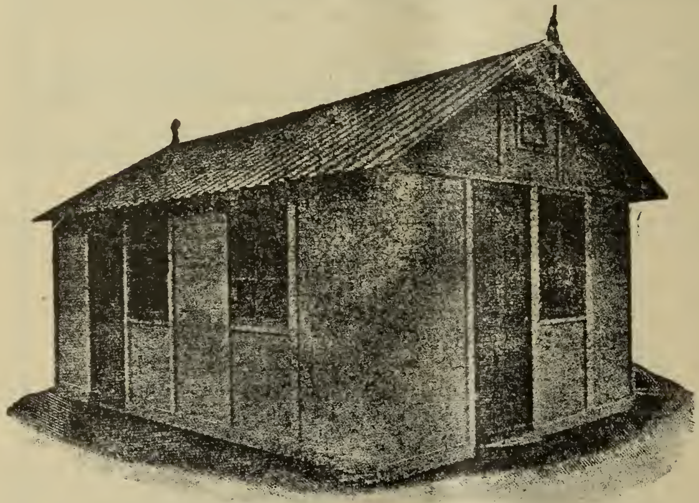
PATENT FOLDING SPRING SLEEPING-BUNKS, for Camping purposes, supplied when necessary, also Drop Tables and suitable Furniture.

Buildings painted inside and out. Sample Building on View at our Adelaide Yard.

MAKE A SPECIAL NOTE OF THIS—

Ninety per cent. (90%) saved in labour of erection!

Just the thing for people settling on the land!



Roofs Covered with **Ruberoid**

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Catalogues and Prices on Application.

LION TIMBER MILLS (Richard Honey),

Franklin Street, Adelaide;
Commercial Road and Lipson Street, Port Adelaide.

Sole Manufacturers in and Holders of Patent Rights for S. A. and Broken Hill.

HASELL'S

BRAND

SUPERPHOSPHATES, &c.

As supplied to the Australian and New Zealand Agricultural Departments.

HIGHER ANALYSES.

LOWER PRICES.

VERY FREE RUNNING.

Standard Grade - - 38-40 °/₀ water soluble.

Second Grade - - 31-32 °/₀ water soluble.

Early application necessary to avoid disappointment.

Marion Guano (for Sour Soils) 50-60 °/₀. In 1 or 2 cwt. Bags.

BONE AND SUPER., GYPSUM FERTILISER, &c., &c.

S.A. PHOSPHATE MINED UNDER ROYALTY OR PURCHASED. FREE ANALYSIS.

Country Agents wanted where not represented.

For Samples, Testimonials, and Full Particulars, apply—

ARTHUR H. HASELL,
LIPSON STREET, PORT ADELAIDE.
[TELEPHONE, PORT 198.]

The Journal of Agriculture.

Published Monthly.

Subscription, 1/- per annum (including postage).

Circulation 5,500 Monthly.

THE Journal contains information of an official character relating to the Agricultural Lands, Stock, and Produce Export Departments. Illustrated articles and paragraphs by Government experts dealing with all branches of agriculture, horticulture, viticulture, pastoral matters, dairying, stock diseases, poultry, etc., are published regularly.

The results of experiments in connection with methods of Agriculture, etc., stock and poultry diseases, insect and fungoid pests in South Australia and other lands are recorded, as well as the results of work at Roseworthy Agricultural College.

The experience of members of the Agricultural Bureau is made available to subscribers by the publication of reports of meetings of the Branches, including the more important papers and the discussion on them.

The Inquiry Department of the Journal furnishes replies by Government experts to all questions sent in, and advice is given to beginners in agricultural industries.

The Reference Library of the Department of Agriculture, which contains so many valuable works on agricultural subjects and thousands of bulletins issued by Departments of Intelligence in all parts of the world, is at the disposal of subscribers during office hours.

Applications for enrolment on the subscribers' list should be addressed to the Department of Agriculture, Exhibition Building, Adelaide.

L. O'LOUGHLIN,

MINISTER OF AGRICULTURE.

EST. 1859.

NEW ZEALAND

INSURANCE COMPANY, LTD.

This Purely Colonial Office makes a Specialty of Producers' Risks.

INSURANCE OF LIVE STOCK

against mortality arising from NATURAL CAUSES AND ACCIDENTS, as well as from the NECESSITY OF DESTRUCTION IN THE INTERESTS OF HUMANITY as the result of an accident.

The risks of Foaling, Castration, Firing, Transit by Rail or Boat, etc., can also be covered.

Every description of Employers' Liability, Personal Accident, and Fire Business (including **HAYSTACK** and **GROWING CROPS**) accepted

AT LOWEST RATES.

SOUTH AUSTRALIAN BRANCH:

112, KING WILLIAM STREET, ADELAIDE.

LOUIS E. WILSON, Manager.

With Agents in Chief Centres. Active Agents wanted where not represented

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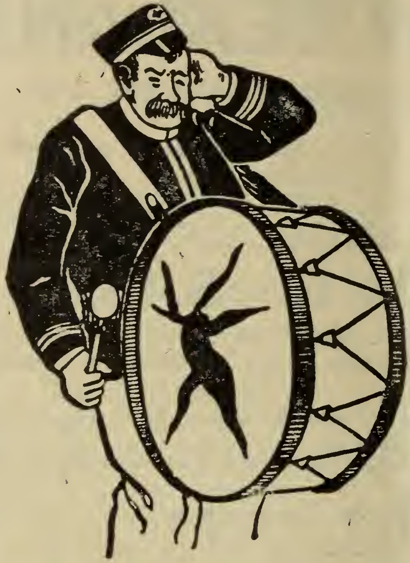
Direct Importers of all kinds of Timber.

Estimates and Prices given for Fruit Cases, Drying Trays, Boxes of every description, Wood and Iron Houses, Wood Bending, etc.

Globe Timber Mills Co.

All Orders have prompt and careful attention, and are charged at Lowest Possible Rates.

Head Office and Bending Works: Flinders Street, Adelaide.



A Broken Drum
Cannot be Beaten ! !

NEITHER CAN

FORGAN'S

Plough and Scarifier

SHARES

Sold at Stores, Blacksmiths, Ironmongers.

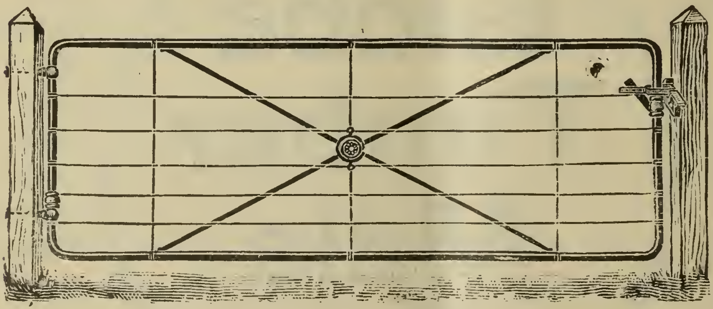
J. & R. FORGAN,

Send for Catalogue.

CRYSTAL BROOK & PORT PIRIE.

A. SIMPSON & SON, LTD.

"PIONEER" FIELD GATES.



BEST
CHEAP
FIELD
GATE
on the
Market.
PRICE
30/-
EACH.

Stronger Quality Field Gates also manufactured. Prices on Application.

A. SIMPSON & SON, LTD.

GAWLER PLACE, ADELAIDE.

Makers of Dairy Utensils, Cream Cans, Sheep and Pig Troughing,
Tanks, Wheel- and Water-barrows, etc., etc.

Fry's Pack Three Cocoas.

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MALTED

CONCENTRATED

Have You Tried Them?

38°/o-40°/o JAP SUPERS.

BAGOT, SHAKES, & LEWIS, LTD.
JAPANESE
38°/o-40°/o WAT. SOL. PHOS.

PRICE.—£4 2s. 6d. per Ton gross (even weights), on Trucks or F.O.B.,
PORT ADELAIDE, WALLAROO, or PORT PIRIE.

GUARANTEED to be DRY, FREE RUNNING, and in SOUND BAGS.

FURTHER PARTICULARS ON APPLICATION TO

BAGOT, SHAKES, & LEWIS, LTD., Adelaide,
WILLIAM THOMAS & CO., Port Adelaide, and
THE STATE MACHINERY CO., Bank St., Adelaide.

Calves thrive.

THE NEW ZEALAND DEPARTMENT OF AGRICULTURE (1902) reports:—

During the year 98 head had been reared. In addition to the skim-milk from the Separator, on which they have been mainly reared, the calves have received **SUNLIGHT OIL CAKE** mixed with the milk. This article, which is a cocoanut cake, not linseed, possesses the great advantage over pollard, oatmeal, oils, and many of the patent mixtures for calf-rearing, that it does not scour the calves. It dissolves readily in boiling water. Calves are soon brought to take to it, and after they become fond of it may be given with advantage from ½lb. to ¾lb. per calf per diem. When the cake is used with skim-milk individual feeding is best, but where big calves are fed together in a trough it is necessary to keep on stirring the milk whilst the calves are drinking. Where this oil cake is used the calves soon show its good effects by their healthy skins and improving condition.

Great advantage over other Fodders.

SUNLIGHT OIL CAKE is a food easily digested, hence it is a fodder specially adapted for calves, as young animals cannot assimilate too strong a food. Calves not intended to run with their mothers should at least be given her milk for the first few days, so that they may receive the benefit of the medicinal properties contained therein.

Healthy Skins. Improving Condition.

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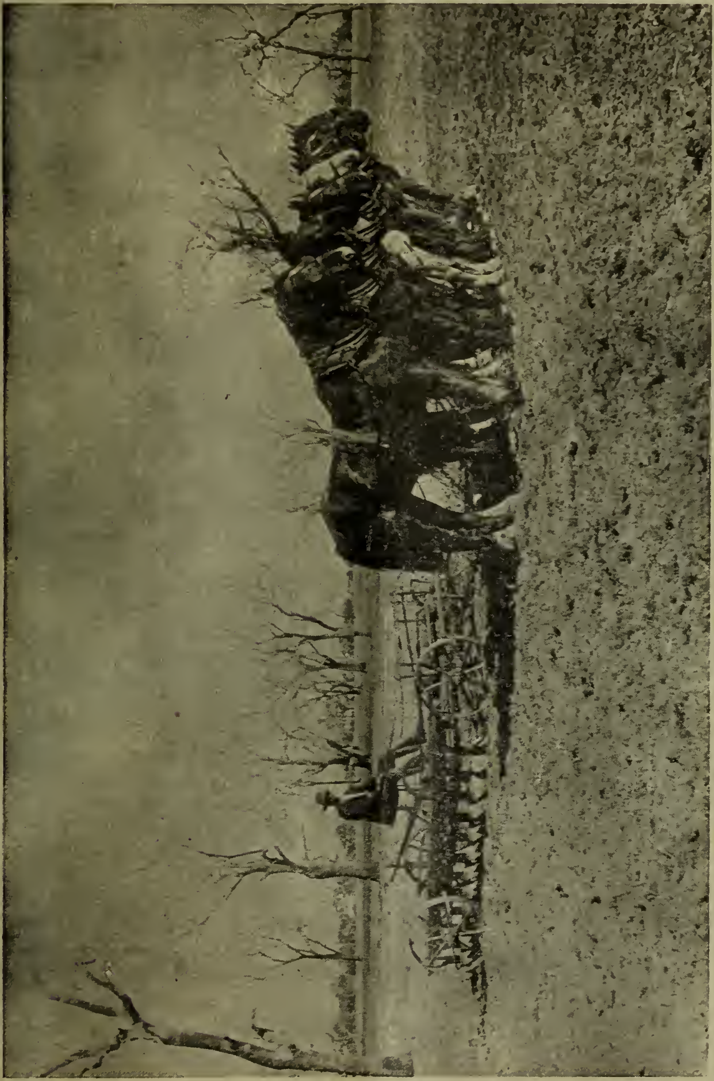

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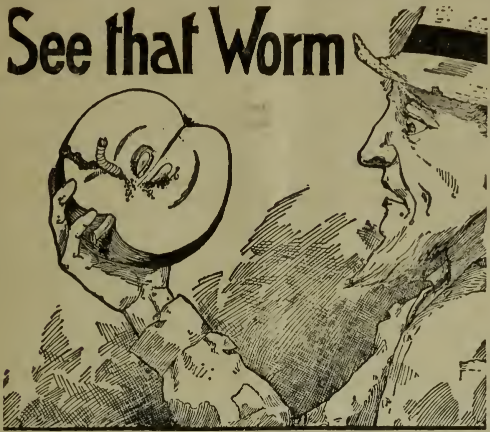

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The following publications have been issued by the Department and are available for distribution at prices mentioned :—

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Reports of Conferences of Australasian Fruitgrowers held at Brisbane and Wellington, 1s. each, or 1s. 3d. if posted.

Journal of Department of Agriculture of South Australia, 1s. per annum, in advance ; 3d. per copy.

Any of the following Bulletins and Leaflets may be obtained by sending a penny stamp for postage :—

Agricultural Miscellaneous : Notes on South Australian Milling Wheats ; Effect of Formalin and Bluestone on the Germination of Seed Wheat ; Milling Characteristics of Australian Wheats ; Semi-arid America—Its Climate Compared with that of South Australia ; Agricultural College, Roseworthy—Harvest Reports ; Agricultural College, Roseworthy—Reports on Permanent Experiment Field ; Value and Aims of Plant Pathology ; Rust-resistant Wheats ; Reports on Agricultural Experiments ; Noxious Weeds ; The South Australian Wheat Yield, season 1907-8 ; Improvement of Cereals ; Roseworthy Agricultural ; Dry-farming in America.

Chemistry and Soils : Soil Surveys ; Available Plant Food in Soil ; Reclamation of Land.

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